

Ben Ellenberger

From: Wilson, Katherine E <katherine.e.wilson@exxonmobil.com>
Sent: Wednesday, November 09, 2011 8:04 AM
To: Ben Ellenberger
Subject: RE: ATC 13696 Draft for review

Follow Up Flag: Follow up
Flag Status: Completed

Ben,

Yes, this addresses our concerns. Thank you for making those changes.

Best,

Katie Wilson
Air Compliance Engineer
SYU and Hill Facilities
ExxonMobil Production Company
CORP-MI-3038
281-654-0742 – Office
281-605-9822 – Mobile
281-654-1147 – Fax

From: Ben Ellenberger [mailto:EllenbergerC@sbcapcd.org]
Sent: Tuesday, November 08, 2011 5:52 PM
To: Wilson, Katherine E
Subject: RE: ATC 13696 Draft for review

Katie,

How about the following language:

C.4.a. "~~MSV Intrepid Main Engine #4 and~~ The Bow Anchor Winch as listed in Table 6 of this permit shall not be used."
C.4.b. "At no time shall more than three of the *MSV Intrepid* Main engines operate at the same time, except for periods of no more than 15 minutes during warm-up of a fourth generator engine for the purpose of replacing an existing on-line generator."

Does this address your concerns? I'm not sure if your concern is the need to operate the fourth generator as a replacement, or the need to operate all four engines simultaneously. If we're going to allow simultaneous operations of all four engines for extended periods of time, the permitted emissions should reflect that scenario.

Thanks,

Ben Ellenberger
SBCAPCD
(805) 961-8879

From: Wilson, Katherine E [mailto:katherine.e.wilson@exxonmobil.com]
Sent: Tuesday, November 08, 2011 3:07 PM

Cc: Doug Allard
Subject: ATC 13696 Draft for review

Katie,

Here is the draft permit for the pipeline span remediation project. Please review this draft and provide any comments to both me and Doug Allard. Once we've addressed any comments you may have, we can move forward with issuing the final permit.

Thanks,

Ben

ExxonMobil Production Company
12000 Calle Real
Goleta, California 93117



ExxonMobil
Production

October 18, 2011

Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities
Revision to ATC/PTO Application

Sent electronically to Mr. Doug Allard <allardd@yahoo.com>

Mr. Doug Allard
Santa Barbara County
Air Pollution Control District
260 North San Antonio Road, Suite A
Santa Barbara, CA 93110

Dear Mr. Allard:

ExxonMobil hereby submits revised information on the Authority to Construct/Permit to Operate (ATC/PTO) application submitted on June 9, 2011 that would permit the use of the *Intrepid* DP vessel to conduct pipeline span remediation maintenance activities at SYU. As a result of information recently obtained from Helix, the operator of the *Intrepid*, ExxonMobil has identified several minor revisions to the ATC/PTO application. These revisions include the removal of several IC engines, removal of the fired hot water heaters, replacement of an emergency IC engine, and the installation of fuel meters. The proposed revisions are summarized below. In addition, replacement sections for Attachment I and Appendixes B, C, and D of the ATC/PTO application are attached. It is important to note that the revisions reduce overall emissions and improve fuel measurements.

General Revisions to the ATC/PTO Application are summarized below:

- Diver Emergency Generator Engine: Replace on-deck Cummins engine with a Caterpillar engine that is installed below deck in the place previously occupied by the decommissioned Caterpillar Mooring Generator Engine (Tier I version of same decommissioned model);
- Mooring Generator Engine: Remove decommissioned Caterpillar engine from vessel;
- Diver Hot water Heaters: Remove diesel fired heaters from vessel and replace with electric units;
- Air Compressor 1 and 2 Engines: Remove engines from vessel as these engines will not be required for the job;
- Fuel Transfer Meters: Install fuel meters on fuel transfer line from fuel storage tanks to main settling/day tanks to improve fuel measurement accuracy.

Santa Ynez Unit
Pipeline Span Remediation
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Revisions to Specific Sections of the ATC/PTO Application are Summarized Below:

- General Permit Application Form -01
 - o Form 1302-H: Delete Diver Hot Water Heaters and Air Compressors
- Attachment I
 - o Project Equipment Table (Page 2 of 6): Delete Diver Hot Water Heaters, Air Compressors and Mooring Generator Set
 - o Emissions (Page 4 of 6): Delete items 5, 6 and 8; Revise item 7 (new item 5) for replaced Diver Emergency Generator Engine
- Appendix A: Manufacturer Specifications
 - o Remove Engine Information on Mooring Generator Engine
 - o Remove PERP Registration 152792 for Air Compressor Cat C-9 engine
 - o Remove PERP Registration 153207 for Air Compressor Cat C-9 engine
 - o Remove Engine Emission data for two Air Compressor Cat C-9 engines
- Appendix B: Criteria Pollutant Emission Calculations
 - o Revise emission calculations to incorporate removed engines and fired heaters and replaced emergency generator (emission reduction)
- Appendix C: Greenhouse Gas Emission Calculations
 - o Revise emission calculations to incorporate removed engines and fired heaters and replaced emergency generator (emission reduction)
- Appendix D: Fuel Measurement Plan
 - o Revise fuel measurement plan to incorporate fuel meters on lines from fuel storage tanks to main settling/day tanks (improve measurement accuracy)

At this time, the above maintenance activities are planned to occur in late 4Q2011 or early 1Q2012 timeframe and will require less than one week to complete the offshore operations. Critical to these maintenance activities is receipt of this ATC/PTO by early 4Q2011 so that firm commitments can be made to secure the vessel and associated contractors.

If you have any questions or comments, please contact either Katie Wilson at (281) 654-0742 .

Sincerely,



Troy M. Tranquada
SYU Operations Superintendent

TMT/bg:kew
Enclosure

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Pipeline Span Remediation
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Revision to ATC/PTO Application

c -w/enclosure

Ms. Stefanie Boehme

Santa Barbara County
Air Pollution Control District
260 North San Antonio Road, Suite A
Santa Barbara, CA 93110

Mr. Ben Ellenberger
Santa Barbara County
Air Pollution Control District
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Mr. Nabil Masri
Bureau of Ocean Energy Management, Regulation and Enforcement
Pacific OCS Region
770 Paseo Camarillo, 2nd Floor
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ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

INTRODUCTION – PROJECT DESCRIPTION

The ExxonMobil Santa Ynez Unit (SYU) is located approximately 20 miles west of the town of Santa Barbara and 3 to 9 miles offshore of El Capitan Beach State Park on the Outer Continental Shelf (OCS). The offshore facilities consist of three oil and gas production platforms: Platforms Hondo, Harmony and Heritage. The production from these facilities is transported to an onshore oil and gas treating facility located in Las Flores Canyon (LFC). Figure 1 shows a schematic diagram of the various pipelines and power cables between LFC and the platforms. The emulsion pipeline is a 20" diameter steel and concrete coated pipeline that goes from Platform Harmony to LFC. The produced gas pipeline is a 12" diameter steel pipeline that goes from Platform Hondo to LFC. The produced water return line is a 12" diameter steel pipeline that goes from LFC to Platform Harmony. In addition to the pipeline, three 35KV power cables go from LFC to the platforms to provide electricity to operate all of the platform equipment. In State Waters, the pipelines and power cables are contained within a State Lands Lease area. In the OCS, the pipelines and power cables proceed along independent paths as they connect to each platform.

ROV inspections over the last several years have identified a high current area in the vicinity of the State Waters 3-mile line that has created recurring free span areas on each of the pipelines. The currently identified free span location area for the SYU pipelines is shown in Figure 2. The six free spans of interest range from about 40' to 105' long and are all less than 6-inches in height. Free span structural analysis calculations have determined that none of the current free spans are longer than the maximum allowable length.

As part of regular maintenance of the pipelines, ExxonMobil proposes to install supports on and under the pipelines in the high current area to significantly reduce the free span lengths. This preventative maintenance measure will increase the overall safety and integrity of the pipelines. Stabilization of the pipeline and remediation of free spans is not anticipated to increase future risk to fishing operations since the area is at the shelf break and the edge of State Waters where commercial trawling is not normally conducted

At this time, the above maintenance activities are planned to occur in late 3Q or early 4Q 2011 and will require less than one week to complete the offshore operations.

Mobilization and Equipment

The mobilization task will comprise all the necessary activities needed to mobilize the vessel, equipment and personnel to the work site.

At this time the *Intrepid* DP vessel is expected to load the required personnel and equipment onboard prior to arrival at SYU. The vessel may or may not make a port call before beginning the pipeline span remediation.

The *Intrepid* DP vessel will be outfitted with the proper equipment to perform the various maintenance activities to complete each phase of the work. The equipment requirements include

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ATC/PTO Application for Pipeline Span
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the following: vessel crane, ROV spread, saturation diving spread, and concrete bags for span remediation.

Offshore Operations

The offshore pipeline span remediation operations include the installation of supports on and under the pipeline at several locations to reduce free spans. The *Intrepid* DP vessel will be utilized to facilitate the installation of the supports. Supports consisting of concrete bags will be placed every 30 to 50 feet on the free spans. Divers and/or an ROV will be utilized to place the bags under and around the pipeline in the best orientation to provide support. A final as-built survey will be conducted at each remediation site.

This Authority to Construct/Permit to Operate application proposes to utilize the M/V *Intrepid* DP vessel at the pipeline span locations in order to conduct the necessary maintenance activities as described above. This application is submitted pursuant to the exemption provided for the use of marine vessels necessary for the maintenance activities under Rule 202 F.8. ExxonMobil proposes to limit operation of the vessel to less than 10 tons of NO_x on an actual basis and to restrict activities to less than a 12-month period.

PROJECT EQUIPMENT

This application is being submitted in order to qualify for an exemption from the New Source Review provisions of Regulation VIII for the use of marine vessels used for maintenance activities under Rule 202 F.8. The vessel and engines associated with these maintenance activities include:

DP Vessel Intrepid

Equipment Type	Description	Emission Controls¹	Operational Status for Project	Permitting Exemptions
Main Engine #1	Warsila Model: 8SL26 Serial No.: 26567	TC, IC, DFI	In Use	202.F.8
Main Engine #2	Warsila Model: SL26 Serial No.: 26568	TC, IC, DFI	In Use	202.F.8
Main Engine #3	Warsila Model: SL26 Serial No.: 26569	TC, IC, DFI	In Use (As required)	202.F.8
Main Engine #4	Warsila Model: SL26 Serial No.: 26570	TC, IC, DFI	Alternate ²	202.F.8

¹ AC = Aftercooled, DFI = Direct Fuel Injection, HPI = High Pressure Injection, IC = Intercooled, TC = Turbocharged

² No more than three main engines will be operated at any time except in case of an emergency; the fourth engine will be available to replace one of the other operating engines.

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Equipment Type	Description	Emission Controls ¹	Operational Status for Project	Permitting Exemptions
Diver Emergency Generator	Caterpillar Model: 3412 Serial No: BPG00441	TC (Tier I)	Safety Req. Testing Only	202.F.8
Mob Craft	Johnson Outboard Model: J25ELSOB Serial No: 05108086	None	Safety Req. Testing Only	202.F.8

In addition to the equipment identified above, the maintenance activities will require the use of equipment for crane, saturation diving and ROV operations. This equipment is powered from the electricity generated from the four main propulsion engines; there are no additional internal combustion engines used.

Manufacturer specifications for the above listed equipment, as available, are provided in Appendix A to this document. Details pertaining to fuel storage, fuel measurement, fuel consumption determination, equipment lock-out, record keeping and reporting are described in greater detail in the Fuel Measurement Plan located in Appendix D.

EMISSIONS

ExxonMobil proposes to utilize the *Intrepid* vessel and the associated engines to perform the maintenance activities described above. The use of this vessel for these activities qualifies for the exemption from New Source Review per Rule 202 F.8. In order to qualify for this exemption, potential emissions associated with the vessel engines must be restricted to less than 10 tons per 12-month period. See Appendix B for the emission calculations.

The following assumptions were made in determining appropriate emission factors for each engine:

Main Engines:

1. The NO_x emission factor for main engines #1 - #4 are based on manufacturer's certification data (See Appendix A).
2. ROC and CO emission factors for main engines #1 - #4 are based on AP-42, Volume II: Mobile Sources, Table 3.3, consistent with APCD permitting of crew and supply boat main engines. Emission factors for these main engines assume vessel engines are each 2500 bhp operating in "cruise" mode.
3. PM/PM₁₀ emission factors for main engines #1 - #4 are based on Kelly et. al (1981) consistent with APCD permitting of crew and supply boats.

Support/Auxiliary Engines:

4. NO_x, ROC, CO, and PM/PM₁₀ emission factors for the Mob Craft are based on AP-42, Volume I, Table 3.3-1.
5. NO_x, ROC, CO, and PM/PM₁₀ emission factors for the diver emergency generator engine are based on the **EPA Non-Road Tier 1** standard for engines rated **>750 hp**.

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Appendix C includes an estimate of the greenhouse gas emissions associated with these activities. Appendix D includes a fuel measurement plan describing the fuel measurement system in place for each engine which will be used to determine engine fuel use to calculate emissions. Appendix E contains vessel diagrams and information including ship diagrams indicating the location of the fuel tanks as well as the piping between the tanks and the engines.

COMPLIANCE WITH DISTRICT RULES AND REGULATIONS

The proposed maintenance activities will comply with applicable SBC APCD rules and regulations, including rules outlined under Regulations II, III, VIII, and XIII. Compliance relative to the following rules and regulations are detailed below:

Rule 201 – Permits Required: This application satisfies the requirement to obtain an Authority to Construct and Permit to Operate in order to temporarily operate the vessel and associated engines.

Rule 202 – Exemptions to Rule 201: The *Intrepid* DP vessel and associated engines are exempt from permitting per Sections F.2 and F.8 of this Rule. As described by these sections, ExxonMobil has chosen to apply for an ATC/PTO in order to qualify for an exemption from the New Source Review provisions of Regulation VIII.

Rule 210 – Fees: ExxonMobil requests that any fees associated with processing this application be billed to ExxonMobil's account.

Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted on the *Intrepid* to 0.5 percent (by weight) for liquids fuels. All engines on the *Intrepid* DP vessel will be in compliance with the liquid fuel limit as determined by fuel analysis documentation.

Rule 321 – Solvent Cleaning Operations: Solvent cleaning operations conducted on the *Intrepid* DP vessel will meet the exemption specified under Section B.2 of this rule.

Rule 323 – Architectural Coatings: If any surface coatings need to be applied to the vessel during the course of these activities, the surface coatings will meet the VOC Content Limit defined in Table 1 of this rule for Nonflat – High Gloss Coatings.

Rule 333 - Control of Emissions from Reciprocating Internal Combustion Engines: This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels. However, engines that operate less than 200 hours per year are exempt from Sections D, E, F, and G of Rule 333.

Regulation VIII – New Source Review: These activities are exempt from the provisions of Regulation VIII per Rule 202 F.8. As such no BACT review, AQIA modeling, or offsets will be provided.

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Regulation XIII – Part 70 Operating Permit Program: These proposed changes constitute a minor Part 70 permit modification under Rule 1301. As required by Rule 1304 Section D.3, the Part 70 application forms for the proposed change are enclosed.

COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

The proposed activities will comply with the following applicable California state regulations:

California Administrative Code Title 17 {Sections 93115}: These sections specify emission, operational, monitoring, and recordkeeping requirements for stationary diesel-fired compression ignition engines rated over 50 bhp. None of the engines on board the *Intrepid* are subject to this regulation.

Mitigation Measures:

ExxonMobil proposed to implement the following mitigation measures to further reduce and minimize impacts to air quality:

- Vessel Fuel Sulfur Content - Vessel operator to purchase low-sulfur diesel fuel (<0.0015 wt% S) and use to fill designated empty fuel storage tanks on vessel (tanks may contain heel of higher sulfur fuel). Sources of fuel for engines and other combustion devices when in Santa Barbara County waters restricted to designated low-sulfur storage tanks.
 - Low-sulfur fuel to be segregated in separate storage tanks (proof of purchase to be provided);
 - Any high-sulfur fuel tanks to be completely segregated and locked out of service;
 - Refueling on onboard equipment to be conducted in accordance with vessel procedures; spill containment equipment must be located nearby.
- Notification - ExxonMobil to provide notice to SBC APCD, JOFLO and other interested agencies at least 15 days before the start of maintenance activities and within 72 hours of the completion of all maintenance activities.
- Emission Reductions - Require contractors to utilize appropriate means to reduce vessel engine emissions wherever possible.
- Emissions Daily Report - ExxonMobil to provide daily report of maintenance activity emissions status to SBC APCD on internal combustion engines and other combustion devices used during the preceding day's activities, the estimated duration of their use, the fuel consumed or hours run and the calculated emissions for the day and the cumulative to date. In addition, report to provide emissions from use of any solvents and paints. Reports to be provided during the offshore maintenance activities.
- Post Emissions Report - At the conclusion of the maintenance activities, prepare and submit a report to SBC APCD summarizing the total actual maintenance activity emissions.

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APPENDIX A
Manufacturer Specifications

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APPENDIX B

Criteria Pollutant Emission Calculations

Table C.1SYU ICCPS and Pipeline Span Remediation ActivitiesEquipment Description[Greenhouse Gas Calculations]

Equipment	Description	Device Specifications			Usage Data			Maximum Operating Schedule (Hrs)				Exemption/ Appl. Reg.	OPERATING DAYS
		Fuel	%S	Size	Units	BSFC	Units	hr	day	qtr	year		
SYU Maintenance Activities (Intrepid DP Vessel)													
Transit To/From Field (Within SBC)													
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8	0.5
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8	0.5
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8	0.0
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8	0.0
	Emerg. Dive Generator	Diesel	0.0015	896	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8	0.0
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0	0	0	0	APCD Rule 202.L.16	0.0
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A	0.0
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A	0.0
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8	0.0
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8	0.0
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8	0.0
Maintenance Repairs (Within SBC)													
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	108	108	APCD Rule 202.F.8	4.5
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	108	108	APCD Rule 202.F.8	4.5
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	16.2	16.2	APCD Rule 202.F.8	0.7
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8	0.0
	Emerg. Dive Generator	Diesel	0.0015	896	bhp	0.055	gal/bhp-hr	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	1.0
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0	0	0	0	APCD Rule 202.L.16	0.0
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A	0.0
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A	0.0
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	1.0
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8	0.0
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8	0.0
Total Days in SYU													5.0

Table C.2SYU ICCPS and Pipeline Span Remediation ActivitiesEquipmentEmission Factors[Greenhouse Gas Calculations]

Equipment	Description	CO ₂	Emission Factors		Units	Basis for Factors
			N ₂ O	CH ₄		
SYU Maintenance Activities (Ocean Patriot DP Vessel)						
Transit To/From Field (Within SBC)						
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Mooring Gen Set	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Bow Anchor Winch	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Mob Craft	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
Maintenance Repairs (Within SBC)						
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Mooring Gen Set	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Bow Anchor Winch	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Mob Craft	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6

Table C.3SYU ICCPS and Pipeline Span Remediation ActivitiesQuarterly and Annual Emissions Estimate[Greenhouse Gas Calculations]

Equipment	Description	CO ₂		CH ₄		N ₂ O		CO ₂ e	
		MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr
SYU Maintenance Activities (Intrepid DP Vessel)									
Transit To/From Field (Within SBC)									
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #2	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #3	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Repairs (Within SBC)	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	60.15	60.15	0.00	0.00	0.00	0.00	60.86	60.86
	Propulsion (Gen Set) #2	60.15	60.15	0.00	0.00	0.00	0.00	60.86	60.86
	Propulsion (Gen Set) #3	9.02	9.02	0.00	0.00	0.00	0.00	9.13	9.13
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.05
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		149.43	149.43	0.00	0.00	0.01	0.01	151.20	151.16

Table C.4SYU ICCPS and Pipeline Span Remediation Activities Peak Construction Emissions [Greenhouse Gas Calculations]

Peak Quarterly (MT/Qtr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	0.00	302.40
Maintenance Activities (Within SBC)	129.38	0.00	0.00	0.00	130.91
Total	149.43	0.00	0.01	0.01	433.31
Peak Annual (MT/Yr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	0.00	20.28
Maintenance Activities (Within SBC)	129.38	0.00	0.00	0.00	130.88
Total	149.43	0.00	0.01	0.01	151.16

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APPENDIX C
Greenhouse Gas Emission Calculations

Table C.1SYU ICCPS and Pipeline Span Remediation ActivitiesEquipment Description[Greenhouse Gas Calculations]

Equipment	Description	Fuel	Device Specifications			Usage Data		Maximum Operating Schedule (Hrs)			Exemption/ Appl. Reg.	OPERATING DAYS
			%S	Size	Units	BSFC	Units	hr	day	qtr	year	
SYU Maintenance Activities (Intrepid DP Vessel)												
Transit To/From Field (Within SBC)												
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	12	12	APCD Rule 202.F.8
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8
	Emerg. Dive Generator	Diesel	0.0015	896	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0	0	0	0	APCD Rule 202.L.16
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8
Maintenance Repairs (Within SBC)												
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	108	108	APCD Rule 202.F.8
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	108	108	APCD Rule 202.F.8
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	1	24	16.2	16.2	APCD Rule 202.F.8
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.8
	Emerg. Dive Generator	Diesel	0.0015	896	bhp	0.055	gal/bhp-hr	0.25	0.25	0.25	0.25	APCD Rule 202.F.8
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0	0	0	0	APCD Rule 202.L.16
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0	0	0	0	N/A
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0.25	0.25	0.25	0.25	APCD Rule 202.F.8
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0	0	0	0	APCD Rule 202.F.2, F.8
Total Days in SYU												5.0

Table C.2SYU ICCPS and Pipeline Span Remediation ActivitiesEquipmentEmission Factors[Greenhouse Gas Calculations]

Equipment	Description	CO ₂	Emission Factors			Units	Basis for Factors
SYU Maintenance Activities (Ocean Patriot DP Vessel)							
Transit To/From Field (Within SBC)							
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Mooring Gen Set	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Bow Anchor Winch	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Mob Craft	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Maintenance Repairs (Within SBC)						
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Mooring Gen Set	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Bow Anchor Winch	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Mob Craft	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	
	Air Compressor	10,150	0.26	0.74	g/gal	CCAR General Reporting Protocol Vers. 3.1 Tables C.3 and C.6	

Table C.3SYU ICCPS and Pipeline Span Remediation Activities Quarterly and Annual Emissions Estimate[Greenhouse Gas Calculations]

Equipment	Description	CO ₂		CH ₄		N ₂ O		CO ₂ e	
		MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr
SYU Maintenance Activities (Intrepid DP Vessel)									
Transit To/From Field (Within SBC)									
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #2	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #3	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Repairs (Within SBC)	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	60.15	60.15	0.00	0.00	0.00	0.00	60.86	60.85
	Propulsion (Gen Set) #2	60.15	60.15	0.00	0.00	0.00	0.00	60.86	60.85
	Propulsion (Gen Set) #3	9.02	9.02	0.00	0.00	0.00	0.00	9.13	9.13
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.05
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Repairs (Within SBC)	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		149.43	149.43	0.00	0.00	0.01	0.01	151.20	151.16

Table C.4SYU ICCPS and Pipeline Span Remediation ActivitiesPeak Construction Emissions [Greenhouse Gas Calculations]

Peak Quarterly (MT/Qtr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	302.40	
Maintenance Activities (Within SBC)	129.38	0.00	0.00	130.91	
Total	149.43	0.00	0.01	433.31	
Peak Annual (MT/Yr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	20.28	
Maintenance Activities (Within SBC)	129.38	0.00	0.00	130.88	
Total	149.43	0.00	0.01	151.16	

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ExxonMobil – Santa Ynez Unit

APPENDIX D
Fuel Measurement Plan

**Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities**

FUEL MEASUREMENT PLAN

Revision 1

ExxonMobil Production Company

October 2011

1. Introduction

ExxonMobil will temporarily use a special vessel, the *Intrepid*, along with other auxiliary and support equipment to conduct maintenance activities associated with the pipeline span remediation activities. These maintenance activities are expected to take less than one week to complete.

This plan discusses the fuel measurement approaches to be implemented during the pipeline span remediation activities. Vessel diagrams indicating the location of the fuel tanks as well as the fuel piping between the tanks and the engines are included in Appendix E.

2. Repair Vessel, Auxiliary and Support Engines

This section discusses the fuel measurement systems for the internal combustion (I.C.) engines associated with the vessel, *Intrepid*, and support equipment required for the maintenance activities. The information below provides details on the fuel measurement systems and lock-out procedures for each engine or combustion device.

The engines that are present on the *Intrepid* and may be used during the maintenance activities are summarized below.

Equipment Type	Description	Emission Controls ¹	Operational Status for Project
Main Engine #1	Warsila Model: 8SL26 Serial No.: 26567	TC, IAC, HPI	In Use
Main Engine #2	Warsila Model: SL26 Serial No.: 26568	TC, IAC, HPI	In Use
Main Engine #3	Warsila Model: SL26 Serial No.: 26569	TC, IAC, HPI	In Use (As required)
Main Engine #4	Warsila Model: SL26 Serial No.: 26570	TC, IAC, HPI	Alternate ²
Diver Emergency Generator Engine	Caterpillar Model: 3412 Serial No: BPG00441	TC (Tier I)	Safety Req'd. Testing Only

¹ TC = Turbocharged, IAC = Enhanced Aftercooled, HPI = High Pressure Injectors

² No more than three main engines will be operated at any time except in case of an emergency; the fourth engine will be available to replace one of the operating engines.

Equipment Type	Description	Emission Controls ¹	Operational Status for Project
Diver Hot Water Heaters- (2)	Beckett Model: SF Serial No: 060821-2253G	None	Removed from vessel
Air Compressor 1	Caterpillar Model: C9 Serial No: JSC16776	TC, AC	Removed from vessel
Air Compressor 1	Caterpillar Model: C9 Serial No: JSC15607	TC, AC	Removed from vessel
Mob Craft	Johnson Outboard Model: J25ELSOB Serial No: 05108086	None	Safety Req'd. Testing Only
Mooring Generator Set	Caterpillar Model: 3412 Serial No: N/A	TC, AC	Removed from vessel

a. Vessel Fuel Measurement Systems

I.C. engines and support equipment associated with the maintenance activities will have a defined methodology to determine the fuel consumed on a daily basis. The sections below provide specific information on the fuel measurement systems that will be used for the I.C. engines and support equipment.

Fuel Storage

There are four main fuel oil storage tanks onboard the vessel. All four tanks will contain the same CA low sulfur (<15 ppm) diesel fuel. No. 1 Port and No.1 Starboard tanks have a capacity of 365.22 cubic meters each and No. 3 Port and No. 3 Starboard tanks have a capacity of 366.1 cubic meters each. There are two main settling tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 25.1 cubic meters. There are also two main day tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 15.46 cubic meters. There is one day tank for the emergency generator with a capacity of 8.56 cubic meters. The vessel contains a fuel manifold system that allows fuel from any of the main storage tanks to be transferred to either of the main settling/day tanks. An electronic fuel meter (GPI Model G2S15N09GMB) measures the fuel transferred from the fuel storage tanks to each main settling/day tank.

There are two fuel oil separators (centrifuges) located respectively in the port and the starboard side engine room. The separators are used to clean the fuel going from the main settling tanks into the main day tanks on a continuous 24 hour/day basis. As a result of this, the main day tanks remain essentially full all the time. The main settling tank volume will decrease as the engines consume fuel. The fuel from the main day tanks is used to supply the main engines as well as the on-deck fueling stations and the emergency generator day tank. Fuel will be transferred once a day

at approximately the same time from the main fuel storage tanks to each main settling/day tank system

Any on-deck fuel use will be supplied from one of the on-deck fueling stations.

During the maintenance activities, the *Intrepid* vessel plans to use all four fuel storage tanks (total of 1,462.6 cubic meters) for low-sulfur diesel fuel (i.e., 0.0015% S) storage on the vessel. These tanks will be used exclusively to supply all of the fuel used during the maintenance activities. Prior to loading with low-sulfur fuel, the designated tanks will be emptied with the contents pumped out to as low a level as possible. If any of the storage tanks are found to contain high sulfur fuel, they will be removed from service and have appropriate means used to prevent inadvertent use during the maintenance activities. If required, individual engine fuel storage tanks will be emptied with the contents pumped out to as low a level as possible and then refilled with low-sulfur fuel. Low-sulfur fuel for the engines used during the maintenance activities will be supplied from fuel manifold piping that connects from one of the designated low-sulfur fuel storage tanks directly to one of the main settling/day tanks.

Inventory Check

The sum of the daily total fuel measurements for each engine any support equipment will be used to determine the quantity of fuel used during the maintenance activities. As a check on the measured fuel used, the vessel will also determine the inventory change between the start and end of the maintenance activities. The determination will involve the following factors: 1) beginning inventory in designated low-sulfur fuel tanks at start of work; 2) fuel purchased or added to designated low-sulfur fuel tanks; 3) fuel transferred out of designated low-sulfur fuel tanks to other storage tanks and not consumed; 4) ending inventory in designated low-sulfur fuel tanks at end of work; and 5) fuel used for non- maintenance activities (i.e., outside of Santa Barbara County). The above information, including supporting documentation will be maintained in written form and provided to ExxonMobil.

The check calculation will be as follows:

$$\text{[Maintenance activity gallons = Beginning inventory – Ending inventory + Purchased or added – Transferred – Non-maintenance activities use]}$$

If the difference between the sum of the measured daily values for all of the engines while in SBC and the vessel inventory check is substantially different (>15%), the inventory check total will be used to determine fuel consumption by adjusting the daily measurements to compensate for the difference. This process involves multiplying the percentage difference times each of the total measured value to obtain an adjusted value that will be used to determine emissions.

Fuel Measurement- General

Daily fuel consumption measurements will be made on each of the fuel tanks. In addition, the non-resettable register on each GPI fuel meter will be recorded each day. The difference between daily measurements will determine the amount of fuel consumed. This fuel volume will then be allocated to the various engines.

At the start and end of the maintenance activities, the fuel level in each of the fuel tanks will be measured as well as the readings on the GPI non-resettable fuel meters and recorded in a log. During the maintenance activities, fuel used by each engine will be determined on a daily basis and recorded in a log. In addition, the time each engine operates will also be determined on a daily basis and recorded in a log. Finally, the vessel engineers will record the daily electrical power output of each of the main generators that are in service.

The following sections explain the methodology for determining fuel consumption for the engines and support equipment used on board the vessel during the maintenance activities.

Fuel Storage Tank Fuel Consumption Measurement

Ship engineers will measure the height of the fuel in each fuel storage tank, main settling tank, main day tank, emergency generator day tank and any on-deck equipment at approximately the same time each day. In addition, the ship engineers will record the non-resettable register reading on the GPI fuel meters. The tank measurements will be made using a sounding tape, gauge glass, calibrated dip stick, or other appropriate means. [The end of the gauging tape/stick will be lowered to the tank bottom and then recovered with the point where the tape/stick becomes wetted defining the height of the fuel in the tank.] The difference in the non-resettable register reading will determine fuel consumption by all of the ship engines and support equipment for the day. As a check, the difference in height between the two daily measurements of the main settling/day tanks, multiplied by a factor dependent on the tank dimensions, will determine fuel consumption by all of the ship engines and support equipment for the day.

On a daily basis, the total vessel onboard fuel inventory will be obtained by summing the amount of fuel in each storage tank (soundings of each storage tank converted to volume using the respective tank tables), the amount of fuel in each main settling and main and emergency generator day tank (gauge glass readings converted to volume using the respective tank table) and the amount of fuel in any on-deck equipment (calibrated dip stick reading converted to volume using the respective tank table).

Fuel Consumption by the Main Ship Engine-Generators

The main ship engine-generators work in an equilibrated condition with each of the operating generators running at approximately the same load. This is achieved through a control device that changes the generators working conditions to have all of them operating at the same load level. Therefore, since the four engines are exactly the same, the fuel consumption for each of the engine-generators will be

calculated by dividing the total fuel allocated to these main engine-generators by the number engine-generators in service (adjusted for hours of operation).

The daily fuel allocated to the main ship engine-generators will be determined by the change in the non-resettable register on the GPI fuel meters (change in height in the Port and Starboard Day/Settling Tanks will be determined as backup to the meter readings in case of malfunction) minus the fuel distributed to the on-deck fueling stations and any transfers to the emergency generator day tank.

Fuel Consumption by On-Deck Equipment

Any on-deck equipment will be fueled from one of three on-deck fueling stations, as needed. The fueling stations are supplied fuel from one of main day tanks below deck. During the maintenance activities, fuel will be transferred as required. The fuel consumption will be determined, by the difference of level of fuel in the storage containers. A sounding tape, gauge glass, calibrated dip stick, or other appropriate means will be used to measure the difference in height of fuel in each container. If container filling is required, the fuel added will be determined by measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage container dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Diver Emergency Generator Engine (1)

The engine is supplied fuel from a separate day tank located adjacent to the engine. During the maintenance activities, the fuel consumption will be determined, if the engine is operated, by the difference in height of fuel in the emergency generator day tank since tank refueling is not anticipated. A sounding tape, gauge glass, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in this day tank. If filling of the day tank is required because the level has reached a minimum volume, the fuel added will be determined by measuring the height before and after filling from one of the main settling/day tanks. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Mob Craft Engine (1)

The engine has a separate fuel tank. During the maintenance activities, the fuel consumption will be determined, if the engine is operated, by the difference in height of fuel in the tank since tank refueling is not anticipated. A sounding tape, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in the tank. If tank filling is required because the level has reached a minimum volume, the fuel added will be determined by measuring the height before and after fueling from one of the on-deck fueling stations. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

b. Lock-Out Procedures for Equipment

The vessel has no equipment that is locked out.

3. Record Keeping and Reporting Requirements

Helix (vessel operator) will maintain records of fuel loadings, transfers and operating levels in each of the designated low-sulfur fuel storage tanks, main settling tanks, main day tanks and emergency generator day tank on a daily basis. In addition, Helix and any subcontractors will maintain records, on a daily basis, of the fuel use and hours of operation of each engine or support equipment for which they are responsible. The records will clearly show when the *Intrepid* vessel is in Santa Barbara County waters. The records will be provided to ExxonMobil to use in determining fuel use and emissions.

ExxonMobil Production Company

12000 Calle Real
Goleta, California 93117



ExxonMobil
Production

June 16, 2011

Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities
ATC/PTO Application - Addendum

Via UPS Overnight: 1Z V7F 007 9962 9399

Ms. Stefanie Boehme
Santa Barbara County
Air Pollution Control District
260 North San Antonio Road, Suite A
Santa Barbara, California 93110

Dear Ms. Boehme:

ExxonMobil recently submitted an ATC/PTO application to permit the use of the *Intrepid* DP vessel to conduct pipeline span remediation maintenance activities in accordance with SBC APCD Rule 202 F.8.

This addendum is being submitted to address the requirements of California Administrative Code Title 17 Section 93118.5 (Harbor Craft Regulation) relative to the operation of the *Intrepid* DP vessel. The maintenance activities ExxonMobil is proposing classify the *Intrepid* as a "Work Boat" under the Harbor Craft Regulation based on correspondence from Todd Sterling at CARB.

Work boats are subject to the following requirements:

- Use of low sulfur fuel (Section (e)(1)),
- Installation and operation of non-resettable hour meters (Section (e)(2)),
- Maintain annual records of operation (Section (g)), and
- Submit an initial report to CARB within 30 days of entering regulated California waters (Section (h)(1)).

June 16, 2011

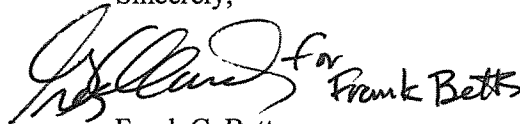
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ATC/PTO Application - Addendum

ExxonMobil will work with the vessel operator to ensure compliance with these requirements during the proposed activities.

If you have further questions or comments, please contact Katie Wilson at (281) 654-0742.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank C. Betts", with a stylized flourish at the end.

Frank C. Betts
SYU Operations Superintendent

FCB/bg:kew

c –

Ben Ellenberger –
Santa Barbara County APCD
260 North San Antonio Road, Suite A
Santa Barbara, California 93110

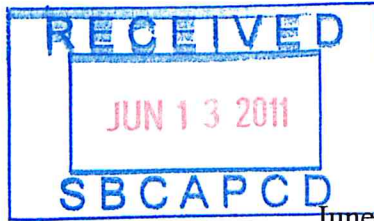
Nabil Masri
Bureau of Ocean Energy Management, Regulation and Enforcement
Pacific OCS Region
770 Paseo Camarillo, 2nd Floor
Camarillo, California 93010

ExxonMobil Production Company

CORP-MI-3041

P.O. Box 4358

Houston, Texas 77210-4358



ExxonMobil
Production

June 9, 2011

Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities
ATC/PTO Application

Ms. Stefanie Boehme
Santa Barbara County
Air Pollution Control District
260 North San Antonio Road, Suite A
Santa Barbara, California 93110

Dear Ms. Boehme:

ExxonMobil hereby submits this ATC/PTO application to permit the use of the *Intrepid* DP vessel to conduct pipeline span remediation maintenance activities. This application is being submitted per the exemptions described in SBC APCD Rule 202 F.8.

ROV inspections over the last few years have identified a high current area in the vicinity of the State Waters 3-mile line that has created recurring free span areas on each of the SYU pipelines. As part of regular maintenance of the pipelines, ExxonMobil proposes to install supports on and under the pipelines in the high current area to significantly reduce the free span lengths. This preventative maintenance measure will increase the overall safety and integrity of the pipelines.

At this time, the above maintenance activities are planned to occur in late 3Q or early 4Q2011 timeframe and will require less than one week to complete the offshore operations. Critical to these maintenance activities is receipt of this ATC/PTO by early this summer so that firm commitments can be made to secure the vessel and associated contractors.

June 9, 2011

Page 2

Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities
ATC/PTO Application

You are hereby authorized to deduct the subject permit fees from ExxonMobil's reimbursable account.

If you have any questions or comments, please contact Katie Wilson at (281) 654-0742.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank C. Betts", with a stylized flourish at the end.

Frank C. Betts
SYU Operations Supervisor

FCB/kew
Enclosure

c -w/enclosure

Ben Ellenberger --
Santa Barbara County APCD
260 North San Antonio Road, Suite A
Santa Barbara, California 93110

Nabil Masri
Bureau of Ocean Energy Management, Regulation and Enforcement
Pacific OCS Region
770 Paseo Camarillo, 2nd Floor
Camarillo, California 93010-6064

June 9, 2011

Page 3

Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities
ATC/PTO Application

Distribution – w/enclosure

Greg Manuel – ExxonMobil (LFC)
Sandra Combe - ExxonMobil (Port Hueneme)
Blake Hebert - ExxonMobil (Houston)
Katie Wilson –Reader File
Bill Grady - ALG (Greeley)
Lisa Kiehl - ALG (Santa Rosa)

File : Santa Ynez Unit - Rule 202.F.8 10-ton Exemption Permits (new file)

Electronic file: I:\World\Usa-Syu\Asset Team\SYU_Admin\Information\O\OIMS_REG\Air\Permits\060611KEW Intrepid APCD
Application For Pipeline Span Remediation\APCD Cover Letter Intrepid (2011) FINAL.Doc



General Permit Application Form -01

Santa Barbara County Air Pollution Control District
PO Box 6447, Santa Barbara, CA 93160-6447

1. APPLICATION TYPE (check all that apply):

- ☒ Authority to Construct (ATC) ☐ Transfer of Owner/Operator (use Form -01T)
☒ Permit to Operate (PTO) ☐ Emission Reduction Credits
☐ ATC Modification ☐ Increase in Production Rate or Throughput
☐ PTO Modification ☐ Decrease in Production Rate or Throughput
☐ Other (Specify) _____

Previous ATC/PTO Number (if known) PTO 9102

- ☒ Yes ☐ No Are Title 5 Minor Modification Forms Attached? (this applies to Title 5 sources only and applies to all application types except ATCs and Emission Reduction Credits). Complete Title 5 Form -1302 A1/A2, B, and M. Complete Title 5 Form -1302 C1/C2, D1/D2, E1/E2, F1/F2, G1/G2 as appropriate. [http://www.sbapcd.org/eng/dl/appforms/t5-forms\(ver1.2\).pdf](http://www.sbapcd.org/eng/dl/appforms/t5-forms(ver1.2).pdf)

Mail the completed application to the APCD's Engineering & Compliance Division (ECD) at the address listed above.

2. FILING FEE: 341

A \$325 application filing fee must be included with each application. The application filing fee is COLA-adjusted every July 1st. Please ensure you are remitting the correct current fee (the current fee schedule is available on the APCD's webpage at: <http://www.sbapcd.org/fees.htm>). This filing fee will not be refunded or applied to any subsequent application. Payment may also be made by credit card by using the Credit Card Authorization Form at the end of this application.

3. IS YOUR PROJECT'S PROPERTY BOUNDARY LOCATED OR PROPOSED TO BE LOCATED WITHIN 1,000 FEET FROM THE OUTER BOUNDARY OF A SCHOOL? If yes, and the project results in an emissions increase, submit a completed Form -03 (School Summary Form) <http://www.sbapcd.org/eng/dl/appforms/apcd-03.pdf> ☐ Yes ☒ No

If yes, provide the name of school(s) _____

Address of school(s) _____

City _____

Zip Code _____

4. DOES YOUR APPLICATION CONTAIN CONFIDENTIAL INFORMATION? If yes, please submit this information according APCD Policy & Procedure 6100-020 (Handling of Confidential Information). http://www.sbapcd.org/eng/dl/eng_p-and-p/6100-020.pdf. Applications not following this P&P will be returned. ☐ Yes ☒ No

FOR APCD USE ONLY			DATE STAMP
FID	8019	Permit No. A/P 13696	<div style="border: 2px solid blue; padding: 5px; text-align: center;"> <p>RECEIVED</p> <p>JUN 13 2011</p> <p>SBCAPCD</p> </div>
Project Name	Platform Heritage		
Filing Fee	341.00	202.E? YES / NO	

Billed

5. COMPANY/CONTACT INFORMATION:

Owner Info		<input checked="" type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name	ExxonMobil Production Company		
Doing Business As			
Contact Name	Todd S. Griffith	Position/Title	Regulatory Compliance Supervisor
Mailing Address	P.O. Box 4358		
City	Houston	State	TX Zip Code 77210-4358
Telephone	281-654-1001	Fax	
		Email	todd.griffith@exxonmobil.com

Operator Info		<input checked="" type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name	Same as Owner Information		
Doing Business As			
Contact Name		Position/Title	
Mailing Address			
City		State	Zip Code
Telephone		Fax	
		Email	

Authorized Agent Info*		<input type="radio"/> Yes <input type="radio"/> No	Use as Billing Contact?
Company Name			
Doing Business As			
Contact Name		Position/Title	
Mailing Address			
City		State	Zip Code
Telephone		Fax	
		Email	

*Use this section if the application is not submitted by the owner/operator. Complete APCD Form -01A (<http://www.sbcapcd.org/eng/dl/appforms/apcd-01a.pdf>). Owner/Operator information above is still required.

SEND PERMITTING CORRESPONDENCE TO (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Owner | <input checked="" type="checkbox"/> Operator |
| <input type="checkbox"/> Authorized Agent | <input type="checkbox"/> Other (attach mailing information) |

6. GENERAL NATURE OF BUSINESS OR AGENCY:

Oil and gas exploration and production

7. EQUIPMENT LOCATION (Address):

Specify the street address of the proposed or actual equipment location. If the location does not have a designated address, please specify the location by cross streets, or lease name, UTM coordinates, or township, range, and section.

Equipment Address	12000 Calle Real		
City	Goleta	State	CA Zip Code 93117
Work Site Phone	8059614030		

☐ Incorporated (within city limits) ☒ Unincorporated (outside city limits) ☐ Used at Various Locations

Assessors Parcel No(s):

8. PROJECT DESCRIPTION:

(Describe the equipment to be constructed, modified and/or operated or the desired change in the existing permit. Attach a separate page if needed):

Authorize the temporary operation of the Intrepid and associated equipment to conduct maintenance per APCD Rule 202 F.8.

9. DO YOU REQUIRE A LAND USE PERMIT OR OTHER LEAD AGENCY PERMIT FOR THE PROJECT DESCRIBED IN THIS APPLICATION?: ☐ Yes ☒ No

A. If yes, please provide the following information

Agency Name	Permit #	Phone #	Permit Date

* The lead agency is the public agency that has the principal discretionary authority to approve a project. The lead agency is responsible for determining whether the project will have a significant effect on the environment and determines what environmental review and environmental document will be necessary. The lead agency will normally be a city or county planning agency or similar, rather than the Air Pollution Control District.

B. If yes, has the lead agency permit application been deemed complete and is a copy of their completeness letter attached?

☐ Yes ☐ No

Please note that the APCD will not deem your application complete until the lead agency application is deemed complete.

C. If the lead agency permit application has not been deemed complete, please explain.

D. A copy of the final lead agency permit or other discretionary approval by the lead agency may be requested by the APCD as part of our completeness review process.

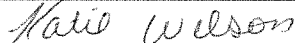
10. PROJECT STATUS:

- A. Date of Equipment Installation 2011
- B. Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for not obtaining a permit ☐ Yes ☒ No for this equipment/modification *and/or* have you installed this equipment without the required APCD permit(s)? If yes, the application filing is double per Rule 210.
- C. Is this application being submitted due to the loss of a Rule 202 exemption? ☐ Yes ☒ No
- D. Will this project be constructed in multiple phases? If yes, attach a separate description of the nature and extent of each project phase, including the associated timing, equipment and emissions. ☐ Yes ☒ No
- E. Is this application also for a change of owner/operator? If yes, please also include a completed APCD Form -01T. ☐ Yes ☒ No

11. APPLICANT/PREPARER STATEMENT:

The person who prepares the application also must sign the permit application. The preparer may be an employee of the owner/operator or an authorized agent (contractor/consultant) working on behalf of the owner/operator (an *Authorized Agent Form -01A* is required).

I certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct.

<div style="border: 1px solid black; padding: 5px; text-align: center;"> Signature of application preparer</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">5/27/2011 Date</div>
<div style="border: 1px solid black; padding: 5px; text-align: center;">Katie Wilson Print name of application preparer</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">ExxonMobil Production Company Employer name</div>

12. APPLICATION CHECKLIST (check all that apply)

- ☒ Application Filing Fee (Fee = \$325. The application filing fee is COLA adjusted every July 1st. Please ensure you are remitting the current fee.) As a convenience to applicants, the APCD will accept credit card payments. If you wish to use this payment option, please complete the attached *Credit Card Authorization Form* and submit it with your application.
- ☐ Existing permitted sources may request that the filing fee be deducted from their current reimbursable deposits by checking this box. Please deduct the filing fee from my existing reimbursement account.
- ☐ Form -01T (*Transfer of Owner/Operator*) attached if this application also addresses a change in owner and/or operator status from what is listed on the current permit. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01t.pdf>
- ☐ Form -03 (*School Summary Form*) attached if the project's property boundary is within 1,000 feet of the outer boundary of a school (k-12) and the project results in an emissions increase. <http://www.sbcapcd.org/eng/dl/appforms/apcd-03.pdf>
- ☒ Information required by the APCD for processing the application as identified in APCD Rule 204 (*Applications*), the APCD's *General APCD Information Requirements List* (<http://www.sbcapcd.org/eng/dl/other/gen-info.pdf>), and any of the APCD's *Process/Equipment Summary Forms* (<http://www.sbcapcd.org/eng/dl/dl01.htm>) that apply to the project.
- ☐ Form -01A (*Authorized Agent Form*) attached if this application was prepared by and/or if correspondence is requested to be sent to an Authorized Agent (e.g., contractor or consultant). This form must accompany each application. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01a.pdf>
- ☐ Confidential Information submitted according to APCD Policy & Procedure 6100-020.

13. NOTICE OF CERTIFICATION:

All applicants must complete the following Notice of Certification. This certification must be signed by the Authorized Company Representative representing the owner/operator. Signatures by Authorized Agents will not be accepted.

NOTICE of CERTIFICATION

I, Frank C. Betts, am employed by or represent
Type or Print Name of Authorized Company Representative

ExxonMobil Production Company (A Subsidiary of ExxonMobil Oil Corporation)
Type or Print Name of Business, Corporation, Company, Individual, or Agency

(hereinafter referred to as the applicant), and certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct and the equipment listed herein complies or can be expected to comply with said rules and regulations when operated in the manner and under the circumstances proposed. If the project fees are required to be funded by the cost reimbursement basis, as the responsible person, I agree that I will pay the Santa Barbara County Air Pollution Control District the actual recorded cost, plus administrative cost, incurred by the APCD in the processing of the application within 30 days of the billing date. If I withdraw my application, I further understand that I shall inform the APCD in writing and I will be charged for all costs incurred through closure of the APCD files on the project.

For applications submitted for Authority to Construct, modifications to existing Authority to Construct, and Authority to Construct/Permit to Operate permits, I hereby certify that all major stationary sources in the state and all stationary sources in the air basin which are owned or operated by the applicant, or by an entity controlling, controlled by, or under common control with the applicant, are in compliance, or are on approved schedule for compliance with all applicable emission limitations and standards under the Clean Air Act (42 USC 7401 *et seq.*) and all applicable emission limitations and standards which are part of the State Implementation Plan approved by the Environmental Protection Agency.

Completed By: Katie Wilson

Title: Environmental Engineer

Date:

9 June 11

Phone:

281-654-0742

Signature of Authorized Company Representative

Frank C. Betts

**PLEASE NOTE THAT FAILURE TO COMPLETELY PROVIDE ALL REQUIRED INFORMATION OR FEES WILL
RESULT IN YOUR APPLICATION BEING RETURNED OR DEEMED INCOMPLETE.**

STATIONARY SOURCE SUMMARY (Form 1302-A1)

APCD: Santa Barbara County Air Pollution Control District

COMPANY NAME: ExxonMobil Production Company

➤ APCD USE ONLY ◀

APCD IDS Processing ID:

Application #:

Date Application Received:

Application Filing Fee*:

Date Application Deemed Complete:

I. SOURCE IDENTIFICATION

1. Source Name: Exxon - Santa Ynez Unit
2. Four digit SIC Code: 1311 USEPA AIRS Plant ID (for APCD use only): 8019
3. Parent Company (if different than Source Name): ExxonMobil Production Company
4. Mailing Address of Responsible Official: P.O. Box 4358, Houston, TX 77210
5. Street Address of Source Location (include Zip Code): 12100 Calle Real, Goleta, CA 93117
6. UTM Coordinates (if required) (see instructions):
7. Source located within: 50 miles of the state line ☐ Yes ☒ No
50 miles of a Native American Nation ☐ Yes ☐ No ☒ Not Applicable
8. Type of Organization: ☒ Corporation ☐ Sole Ownership ☐ Government
☐ Partnership ☐ Utility Company
9. Legal Owner's Name: ExxonMobil Production Company
10. Owner's Agent Name (if any): NA Title: Telephone #:
11. Responsible Official: Frank C. Betts Title: SYU Operations Superintendent Telephone #: (805) 961-4078
12. Plant Site Manager/Contact: Frank C. Betts Title SYU Operations Superintendent Telephone #: (805) 961-4078
13. Type of facility: Oil and Gas Processing Facility
14. General description of processes/products: See Section 2 of Part 70 PTO 9102
15. Does your facility store, or otherwise handle, greater than threshold quantities of any substance on the Section 112(r) List of Substances and their Thresholds (see Attachment A)? ☒ Yes ☐ No
16. Is a Federal Risk Management Plan [pursuant to Section 112(r)] required? ☐ Not Applicable ☐ Yes ☒ No
(If yes, attach verification that Risk Management Plan is registered with appropriate agency or description of status of Risk Management Plan submittal.)

* Applications submitted without a filing fee will be returned to the applicant immediately as "improper" submittals

STATIONARY SOURCE SUMMARY

(Form 1302-A2)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

II. TYPE OF PERMIT ACTION

	CURRENT PERMIT (permit number)	EXPIRATION (date)
<input type="checkbox"/> Initial SBCAPCD's Regulation XIII Application		
<input type="checkbox"/> Permit Renewal		
<input type="checkbox"/> Significant Permit Revision*		
<input checked="" type="checkbox"/> Minor Permit Revision*	9102	6/12/2012
<input type="checkbox"/> Administrative Amendment		

III. DESCRIPTION OF PERMIT ACTION

1. Does the permit action requested involve: a: ☐ Portable Source ☐ Voluntary Emissions Caps
 ☐ Acid Rain Source ☐ Alternative Operating Scenarios
 ☐ Source Subject to MACT Requirements [Section 112]
- b: ☒ None of the options in 1.a. are applicable

2. Is source operating under a Title V Program Compliance Schedule? ☐ Yes ☒ No

3. For permit modifications, provide a general description of the proposed permit modification:

See Attachment I for additional details. Project proposes to temporarily operate the Intrepid DP vessel and associated equipment to complete the pipeline span remediation-maintenance activities.

*Requires APCD-approved NSR permit prior to a permit revision submittal

TOTAL STATIONARY SOURCE EMISSIONS (Form 1302-B)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

I. TOTAL STATIONARY SOURCE EMISSIONS

Provide a brief description of operating scenario: Temporarily operate the Intrepid DP vessel and associated equipment to conduct pipeline span remediation maintenance activities.

POLLUTANT* (name)	EMISSIONS (tons per year)	PRE-MODIFICATION EMISSIONS (tons per year)	EMISSIONS CHANGE (tons per year)
See Attachment I for specific emission calculations.			

* Emissions for all pollutants for which the source is major and for all NSPS/MACT-regulated air pollutants must be reported. HAP emissions must be determined, and those exceeding one ton per year from any emission unit category must also be quantified; if less than one ton per year, just list the HAPs emitted by name.

COMBUSTION EMISSION UNIT (Form 1302-C1)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

I. EMISSION UNIT DESCRIPTION

1. Equipment type: Diesel Fired Main Propulsion Engines (4) ATC/PTO Number:
2. Equipment description: Engine Generator Set
3. For piston ICEs: ☐ 2-stroke ☐ 4-stroke ☒ NA
4. Equipment make, model & serial number: Wartsila (See Attachment I and Appendix A for details)
5. Maximum design process rate or maximum power input/output: 3,326 bhp max engine
6. Primary use: Propulsion
7. Burner(s) design, operating temperature and capacity:
8. Control device(s) type and description (if any): Turbocharged, enhanced aftercooled, and high pressure fuel injection

II. OPERATIONAL INFORMATION

1. Operating schedule: 24 hours/day ~120(maximum per engine) hours/year

** Note that only 3 of the 4 main engines will be in service at the same time.

2. Exhaust gas properties (temperature, SCFM, %H₂O, %O₂ or %CO₂, % excess air):
3. Fuel specifications:

FUEL TYPE (name)	MAX ANNUAL USAGE** (ft ³ /yr, lb/yr, gal/yr)	HEATING VALUE (BTU/lb or BTU/gal)	SULFUR (%)
Diesel (D2)	~15,000 (Combined usage) Gal/yr		0.0015

* Equipment may be grouped on a single form if it is of the same type and if the emissions are calculated the same way.

** List only if there is a permit restriction limiting annual fuel use below the theoretical maximum usage.

COMBUSTION EMISSION UNIT

(Form 1302-C2)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

4. Emissions for Emission Units described on page(s): See Attachment I for additional details.

CRITERIA POLLUTANT EMISSIONS (tons per year)					
POLLUTANTS					
A. Emissions					
B. Pre-Modification Emissions¹					
C. Emission Change²					
D. Emission Limit³					

OTHER REGULATED AIR POLLUTANT EMISSIONS (tons per year) ⁴					
POLLUTANTS					
A. Emissions					
B. Pre-Modification Emissions¹					
C. Emission Change²					
D. Emission Limit³					

¹ For permit revisions only; emissions prior to project modification.

² Difference between Pre-Modification Emissions (Section B.) and Emissions (Section A.).

³ For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) corrected for dilution air, pounds per hour (lbs/hr), pounds per million BTU (lb/MMBTU, etc.) required by any applicable federal requirement.

⁴ HAP emissions must be determined, and those exceeding one ton per year from any emission unit category must also be quantified; if less than one ton per year, just list the HAPs emitted by name.

EXEMPT EMISSIONS UNITS (Form 1302-H)

APCD: Santa Barbara County Air Pollution Control District	➤ APCD USE ONLY ◀ APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

Are you claiming any emitting activities to be insignificant? (See definition at bottom of page)

YES ☒ NO ☐

I. ACTIVITIES CLAIMED TO BE INSIGNIFICANT (Attach supporting calculations)

Activity	Description of Activity/Emission Units	Potential to Emit for each Pollutant
	Emergency Diver Generator Engine	<0.01 TPY NO _x
	Auxiliary Engine – Diver Hot Water Heaters	<0.01 TPY NO _x
	Auxiliary Engine – Mob Craft	<0.01 TPY NO _x
	Auxiliary Engine – Air Compressors	<0.04 TPY NO _x

Insignificant activities are defined in APCD Rule 1301 (definitions). For an activity to be considered insignificant emissions cannot exceed 2 tons per year potential to emit (PTE) any criteria pollutants, and 0.5 tons per year for any regulated HAP.

Note: Insignificant activities are not exempt from Part 70 requirements/permits.

COMPLIANCE PLAN (Form 1302-I1)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

I. PROCEDURE FOR USING FORM 1302-I

- ☞ This form shall be submitted as part of the SBCAPCD's Regulation XIII Application. The Responsible Official shall identify the applicable federal requirement(s) to which the source is subject. In the Compliance Plan (Form 1302-I), a Responsible Official shall identify whether the source identified in the SBCAPCD's Regulation XIII Application currently operates in compliance with all applicable federal requirements.

II. APPLICABLE FEDERAL REQUIREMENTS

Applicable Federal Requirement ¹		Affected Emission Unit	In compliance? (yes/no/exempt ³)	Effective Date ⁴
Regulatory Reference ²	Regulation Title ²			
Rule 333	Control of Emissions from Reciprocating ICE	Emergency Engines (Diver Generator)	Exempt – Emergency Standby Engine per ATCM Section 93115	6/19/2008

1 Review APCD SIP Rules, NSPS, NESHAPS, and MACTs .

2 Regulatory Reference is the abbreviated citation (e.g. 40 CFR 60 Subpart OOO, APCD Rule 325.H) and Title is the prosaic title (e.g. NSPS Standards of Performance for Nonmetallic Mineral Processing Plants, Crude Oil Production and Separation, Inspection)

3 If exempt from applicable federal requirement, include explanation for exemption.

4 Indicate the date during the permit term that the applicable federal requirement will become effective for the emission unit.

Other Applicable Federal Requirements ⁵	Affected Emission Unit	In compliance?	Effective Date

5 All environmentally significant permit conditions -- such as emission, operation, and throughput limitations or compliance monitoring conditions associated with such limitations -- listed in all authority to construct (ATC) permits issued to the Part 70 source are also applicable requirements.

*** If more than one page is used, please ensure that "Santa Barbara APCD", stationary source name and "Form 1302-I1" appear on each page. ***

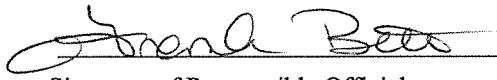
COMPLIANCE PLAN (Form 1302-I2)

APCD: Santa Barbara County Air Pollution Control District	➤ APCD USE ONLY < APCD IDS Processing ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

III. COMPLIANCE CERTIFICATION

Under penalty of perjury, I certify the following:

- ☒ Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s) with which the source is in compliance identified in form 1302-I1;
- ☐ Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with the future-effective applicable federal requirement(s) identified in form 1302-I1, on a timely basis¹;
- ☐ Based on information and belief formed after reasonable inquiry, the source identified in this application is not in compliance with the applicable federal requirement(s), identified in form 1302-I1, and I have attached a compliance plan schedule.²


Signature of Responsible Official

9 June 11
Date

1. Unless a more detailed schedule is expressly required by the applicable federal requirement.
2. At the time of expected permit issuance, if the source expects to be out of compliance with an applicable federal requirement, the applicant is required to provide a compliance schedule with this application, with the following exception. A source which is operating under a variance that is effective for less than 90 days need not submit a Compliance Schedule. For sources operating under a variance, which is in effect for more than 90 days, the Compliance Schedule is the schedule that was approved as part of the variance granted by the hearing board.

The compliance schedule shall contain a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with this applicable federal requirement. For sources operating under a variance, the compliance schedule is part of the variance granted by the hearing board. The compliance schedule shall resemble, and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. For sources not operating under a variance, consult the Air Pollution Control Officer regarding procedures for obtaining a compliance schedule.

CERTIFICATION STATEMENT (Form 1302-M)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS PROCESSING ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

Identify, by checking off below, the forms and attachments that are part of your application. If the application contains forms or attachments that are not identified below, please identify these attachments in the blank space provided below. Review the instructions if you are unsure of the forms and attachments that need to be included in a complete application.

Forms included with application <input checked="" type="checkbox"/> Stationary Source Summary Form <input type="checkbox"/> Total Stationary Source Emission For <input type="checkbox"/> Compliance Plan Form <input type="checkbox"/> Compliance Plan Certification Form <input type="checkbox"/> Exempt Equipment Form <input checked="" type="checkbox"/> Certification Statement Form List other forms or attachments _____ _____ _____ _____ <div style="text-align: center;">[] check here if additional forms listed on back</div>

Attachments included with application <input checked="" type="checkbox"/> Description of Operating Scenarios <input checked="" type="checkbox"/> Sample emission calculations <input type="checkbox"/> Fugitive emission estimates <input type="checkbox"/> List of Applicable requirements <input type="checkbox"/> Discussion of units out of compliance with applicable federal requirements and, if required, submit a schedule of Compliance <input type="checkbox"/> Facility schematic showing emission points <input type="checkbox"/> NSR Permit <input type="checkbox"/> PSD Permit <input type="checkbox"/> Compliance Assurance monitoring protocols <input type="checkbox"/> Risk management verification per 112(r)
--

I certify under penalty of law, based on information and belief formed after reasonable inquiry, that the information contained in this application, composed of the forms and attachments identified above, are true, accurate, and complete.

I certify that I am the responsible official, as defined in SBCAPCD's Regulation XIII, Rule 1301 or USEPA's 40 CFR Part 70.

	<u>9 Jun 11</u>
Signature of Responsible Official	Date

Print Name of Responsible Official: Frank C. Betts

Title of Responsible Official and Company Name: SYU Operations Superintendent, ExxonMobil Production Company

CERTIFICATION STATEMENT (Form 1302-M continued)

APCD: Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS PROCESSING ID:
COMPANY NAME: ExxonMobil Production Company	SOURCE NAME: Exxon - SYU

List Other Forms or Attachments (cont.)

Attachment I - Contains project description, emission calculations, rule analysis, and an equipment list for this project

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

INTRODUCTION – PROJECT DESCRIPTION

The ExxonMobil Santa Ynez Unit (SYU) is located approximately 20 miles west of the town of Santa Barbara and 3 to 9 miles offshore of El Capitan Beach State Park on the Outer Continental Shelf (OCS). The offshore facilities consist of three oil and gas production platforms: Platforms Hondo, Harmony and Heritage. The production from these facilities is transported to an onshore oil and gas treating facility located in Las Flores Canyon (LFC). Figure 1 shows a schematic diagram of the various pipelines and power cables between LFC and the platforms. The emulsion pipeline is a 20" diameter steel and concrete coated pipeline that goes from Platform Harmony to LFC. The produced gas pipeline is a 12" diameter steel pipeline that goes from Platform Hondo to LFC. The produced water return line is a 12" diameter steel pipeline that goes from LFC to Platform Harmony. In addition to the pipeline, three 35KV power cables go from LFC to the platforms to provide electricity to operate all of the platform equipment. In State Waters, the pipelines and power cables are contained within a State Lands Lease area. In the OCS, the pipelines and power cables proceed along independent paths as they connect to each platform.

ROV inspections over the last several years have identified a high current area in the vicinity of the State Waters 3-mile line that has created recurring free span areas on each of the pipelines. The currently identified free span location area for the SYU pipelines is shown in Figure 2. The six free spans of interest range from about 40' to 105' long and are all less than 6-inches in height. Free span structural analysis calculations have determined that none of the current free spans are longer than the maximum allowable length.

As part of regular maintenance of the pipelines, ExxonMobil proposes to install supports on and under the pipelines in the high current area to significantly reduce the free span lengths. This preventative maintenance measure will increase the overall safety and integrity of the pipelines. Stabilization of the pipeline and remediation of free spans is not anticipated to increase future risk to fishing operations since the area is at the shelf break and the edge of State Waters where commercial trawling is not normally conducted

At this time, the above maintenance activities are planned to occur in late 3Q or early 4Q 2011 and will require less than one week to complete the offshore operations.

Mobilization and Equipment

The mobilization task will comprise all the necessary activities needed to mobilize the vessel, equipment and personnel to the work site.

At this time the *Intrepid* DP vessel is expected to load the required personnel and equipment onboard prior to arrival at SYU. The vessel may or may not make a port call before beginning the pipeline span remediation.

The *Intrepid* DP vessel will be outfitted with the proper equipment to perform the various maintenance activities to complete each phase of the work. The equipment requirements include

ATTACHMENT I
ATC/PTO Application for Pipeline Span
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the following: vessel crane, ROV spread, saturation diving spread, and concrete bags for span remediation.

Offshore Operations

The offshore pipeline span remediation operations include the installation of supports on and under the pipeline at several locations to reduce free spans. The Intrepid DP vessel will be utilized to facilitate the installation of the supports. Supports consisting of concrete bags will be placed every 30 to 50 feet on the free spans. Divers and/or an ROV will be utilized to place the bags under and around the pipeline in the best orientation to provide support. A final as-built survey will be conducted at each remediation site.

This Authority to Construct/Permit to Operate application proposes to utilize the M/V *Intrepid* DP vessel at the pipeline span locations in order to conduct the necessary maintenance activities as described above. This application is submitted pursuant to the exemption provided for the use of marine vessels necessary for the maintenance activities under Rule 202 F.8. ExxonMobil proposes to limit operation of the vessel to less than 10 tons of NOx on an actual basis and to restrict activities to less than a 12-month period.

PROJECT EQUIPMENT

This application is being submitted in order to qualify for an exemption from the New Source Review provisions of Regulation VIII for the use of marine vessels used for maintenance activities under Rule 202 F.8. The vessel and engines associated with these maintenance activities include:

DP Vessel Intrepid

Equipment Type	Description	Emission Controls¹	Operational Status for Project	Permitting Exemptions
Main Engine #1	Warsila Model: 8SL26 Serial No.: 26567	TC, IC, DFI	In Use	202.F.8
Main Engine #2	Warsila Model: SL26 Serial No.: 26568	TC, IC, DFI	In Use	202.F.8
Main Engine #3	Warsila Model: SL26 Serial No.: 26569	TC, IC, DFI	In Use (As required)	202.F.8
Main Engine #4	Warsila Model: SL26 Serial No.: 26570	TC, IC, DFI	Alternate ²	202.F.8

¹ AC = Aftercooled, DFI = Direct Fuel Injection, HPI = High Pressure Injection, IC = Intercooled, TC = Turbocharged

² No more than three main engines will be operated at any time except in case of an emergency; the fourth engine will be available to replace one of the other operating engines.

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ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

Equipment Type	Description	Emission Controls ¹	Operational Status for Project	Permitting Exemptions
Diver Emergency Generator	Cummins Model: QSK15G3 Serial No: 79140200	TC	Safety Req'd. Testing Only	202.F.8
Diver Hot Water Heaters (2)	Beckett Model: SF Serial No: 060821-2253G	None	In Use (Operate 1 of 2)	202.L.16
Air Compressor 1	Caterpillar Model: C9 Serial No: JSC16776	TC, AC	In Use	202.F.2 and 202.F.8
Air Compressor 2	Caterpillar Model: C9 Serial No: JSC15607	TC, AC	Backup to Air Compressor 1	202.F.2 and 202.F.8
Mob Craft	Johnson Outboard Model: J25ELSOB Serial No: 05108086	None	Safety Req'd. Testing Only	202.F.8
Mooring Generator Set	Caterpillar Model: 3412 Serial No: N/A	TC, AC	Not in Service – Fuel Line Disconnected	NA

In addition to the equipment identified above, the maintenance activities will require the use of equipment for crane, saturation diving and ROV operations. This equipment is powered from the electricity generated from the four main propulsion engines; there are no additional internal combustion engines used.

Manufacturer specifications for the above listed equipment, as available, are provided in Appendix A to this document. Details pertaining to fuel storage, fuel measurement, fuel consumption determination, equipment lock-out, record keeping and reporting are described in greater detail in the Fuel Measurement Plan located in Appendix D.

EMISSIONS

ExxonMobil proposes to utilize the *Intrepid* vessel and the associated engines to perform the maintenance activities described above. The use of this vessel for these activities qualifies for the exemption from New Source Review per Rule 202 F.8. In order to qualify for this exemption, potential emissions associated with the vessel engines must be restricted to less than 10 tons per 12-month period. See Appendix B for the emission calculations.

The following assumptions were made in determining appropriate emission factors for each engine:

Main Engines:

1. The NO_x emission factor for main engines #1 - #4 are based on manufacturer's certification data (See Appendix A).

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

2. ROC and CO emission factors for main engines #1 - #4 are based on AP-42, Volume II: Mobile Sources, Table 3.3, consistent with APCD permitting of crew and supply boat main engines. Emission factors for these main engines assume vessel engines are each 2500 bhp operating in "cruise" mode.
3. PM/PM10 emission factors for main engines #1 - #4 are based on Kelly et. al (1981) consistent with APCD permitting of crew and supply boats.

Support/Auxiliary Engines:

4. NOx, ROC, CO, and PM/PM10 emission factors for the Mob Craft are based on AP-42, Volume I, Table 3.3-1.
5. NOx, CO, and PM/PM10 emission factors for the diver hot water heater are based on AP-42, Volume I, Table 1.3-1.
6. ROC emission factor for the diver hot water heater is based on AP-42, Volume I, Table 1.3-3.
7. NOx, ROC, CO, and PM/PM10 emission factors for the diver emergency generator are based on the EPA Non-Road Tier 2 standard for engines rated between 300 – 600 hp.
8. NOx, ROC, CO, and PM/PM10 emission factors for the two air compressors are based on the EPA Non-Road Tier 2I standard for engines rated between 300 – 600 hp.

Appendix C includes an estimate of the greenhouse gas emissions associated with these activities. Appendix D includes a fuel measurement plan describing the fuel measurement system in place for each engine which will be used to determine engine fuel use to calculate emissions. Appendix E contains vessel diagrams and information including ship diagrams indicating the location of the fuel tanks as well as the piping between the tanks and the engines.

COMPLIANCE WITH DISTRICT RULES AND REGULATIONS

The proposed maintenance activities will comply with applicable SBC APCD rules and regulations, including rules outlined under Regulations II, III, VIII, and XIII. Compliance relative to the following rules and regulations are detailed below:

Rule 201 – Permits Required: This application satisfies the requirement to obtain an Authority to Construct and Permit to Operate in order to temporarily operate the vessel and associated engines.

Rule 202 – Exemptions to Rule 201: The *Intrepid* DP vessel and associated engines are exempt from permitting per Sections F.2 and F.8 of this Rule. As described by these sections, ExxonMobil has chosen to apply for an ATC/PTO in order to qualify for an exemption from the New Source Review provisions of Regulation VIII.

Rule 210 – Fees: ExxonMobil requests that any fees associated with processing this application be billed to ExxonMobil's account.

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
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Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted on the *Intrepid* to 0.5 percent (by weight) for liquids fuels. All engines on the *Intrepid* DP vessel will be in compliance with the liquid fuel limit as determined by fuel analysis documentation.

Rule 321 – Solvent Cleaning Operations: Solvent cleaning operations conducted on the *Intrepid* DP vessel will meet the exemption specified under Section B.2 of this rule.

Rule 323 – Architectural Coatings: If any surface coatings need to be applied to the vessel during the course of these activities, the surface coatings will meet the VOC Content Limit defined in Table 1 of this rule for Nonflat – High Gloss Coatings.

Rule 333 - Control of Emissions from Reciprocating Internal Combustion Engines: This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels. However, engines that operate less than 200 hours per year are exempt from Sections D, E, F, and G of Rule 333.

Regulation VIII – New Source Review: These activities are exempt from the provisions of Regulation VIII per Rule 202 F.8. As such no BACT review, AQIA modeling, or offsets will be provided.

Regulation XIII – Part 70 Operating Permit Program: These proposed changes constitute a minor Part 70 permit modification under Rule 1301. As required by Rule 1304 Section D.3, the Part 70 application forms for the proposed change are enclosed.

COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

The proposed activities will comply with the following applicable California state regulations:

California Administrative Code Title 17 {Sections 93115}: These sections specify emission, operational, monitoring, and recordkeeping requirements for stationary diesel-fired compression ignition engines rated over 50 bhp. None of the engines on board the *Intrepid* are subject to this regulation.

Mitigation Measures:

ExxonMobil proposed to implement the following mitigation measures to further reduce and minimize impacts to air quality:

- Vessel Fuel Sulfur Content - Vessel operator to purchase low-sulfur diesel fuel (<0.0015 wt% S) and use to fill designated empty fuel storage tanks on vessel (tanks may contain heel of higher sulfur fuel). Sources of fuel for engines and other combustion devices when in Santa Barbara County waters restricted to designated low-sulfur storage tanks.
 - Low-sulfur fuel to be segregated in separate storage tanks (proof of purchase to be provided);

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- Any high-sulfur fuel tanks to be completely segregated and locked out of service;
 - Refueling on onboard equipment to be conducted in accordance with vessel procedures; spill containment equipment must be located nearby.
- Notification - ExxonMobil to provide notice to SBC APCD, JOFLO and other interested agencies at least 15 days before the start of maintenance activities and within 72 hours of the completion of all maintenance activities.
- Emission Reductions - Require contractors to utilize appropriate means to reduce vessel engine emissions wherever possible.
- Emissions Daily Report - ExxonMobil to provide daily report of maintenance activity emissions status to SBC APCD on internal combustion engines and other combustion devices used during the preceding day's activities, the estimated duration of their use, the fuel consumed or hours run and the calculated emissions for the day and the cumulative to date. In addition, report to provide emissions from use of any solvents and paints. Reports to be provided during the offshore maintenance activities.
- Post Emissions Report - At the conclusion of the maintenance activities, prepare and submit a report to SBC APCD summarizing the total actual maintenance activity emissions.

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

APPENDIX A
Manufacturer Specifications



Engine Dataplate

BASE ENGINE INFORMATION	
Upfit	Original
Engine Serial Number	79140200
Shop Order #	SO36933
Plant	JEP - JAMESTOWN ENGINE PLANT
Build Date	26 Oct 2005
Warranty Start Date	
Customer Number	2465
Customer Name	
ECM Code	Not Available For This Engine
Fuel Pump Part #	4088063
Fuel Pump Calibration	PG08
Film Card	SS
Engine Config #	D103003GD21
CPL #	CPL8081
Marketing Model Name	QSX15-G3 NR2
Service Model Name	QSX15 CM570

ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction, Technical File and Means of Verification)

Issued under the provisions of the Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

Commonwealth of The Bahamas
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wartsila Italia S.p.A.	Wartsila W8L26A	26569	E2	263.5 kW 900 rpm	ABSLD-NTC-1248-0100-00009

THIS IS TO CERTIFY:

- That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
- That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston Station
Surveyor, American Bureau of Shipping



SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION

CERTIFICATE (EIAPP CERTIFICATE)

RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO_x Technical Code").

Notes:

1. This Record and its attachments shall be permanently attached to the EIAPP Certificate. The EIAPP Certificate shall accompany the engine throughout its life and shall be available on board the ship at all times.
2. If the language of the original Record is neither English nor French, the text shall include a translation into one of these languages.
3. Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and Means of Verification refer to mandatory requirements of the NO_x Technical Code.

1 Particulars of the engine

1.1 Name and address of manufacturer

Name	Wärtsilä Italia S.p.A
Address	Bagnoli della Rosandra, 334 34018 San Dorligo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.6 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 26569
- 1.8 If applicable, the engine is a parent engine ☐ or a member engine ☒ of the following engine family ☐ or engine group ☒ Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO_x Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001 (Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO_x reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO_x Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO_x Emission Value (g/kWh) E2: 10.4 g/kWh

2 Particulars of the Technical File*

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00009

2.2 Technical File approval date 7 December 2009

* The Technical File, as required by chapter 2 of NO_x Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

3 Specifications for the On-board NO_x Verification Procedures for the Engine Parameter Survey**

3.1 On-board NO_x verification procedures identification/approval number ABSLD-NTC-1248-0100-00009

3.2 On-board NO_x verification procedures approval date 7 December 2009

** The specifications for the on-board NO_x verification procedures, as required by chapter 6 of the NO_x Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston Station
Surveyor, American Bureau of Shipping



ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction, Technical File and Means of Verification)

Issued under the provisions of the Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

Commonwealth of The Bahamas
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wartsila Italia S.p.A.	Wartsila W8L26A	26570	E2	263.5 kW 900 rpm	ABSLD-NTC-1248-0100-00010

THIS IS TO CERTIFY:

1. That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
2. That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



ABS

Reeves, Jeffrey A., Galveston
Surveyor, American Bureau of Shipping



SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE (EIAPP CERTIFICATE)

RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO_x Technical Code")

Notes:

1. This Record and its attachments shall be permanently attached to the EIAPP Certificate. The EIAPP Certificate shall accompany the engine throughout its life and shall be available on board the ship at all times.
2. If the language of the original Record is neither English nor French, the text shall include a translation into one of these languages.
3. Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and Means of Verification refer to mandatory requirements of the NO_x Technical Code.

1 Particulars of the engine

1.1 Name and address of manufacturer

Name	Wärtsilä Italia S.p.A
Address	Bagnoli della Rosandra, 334 34018 San Dorligo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.6 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 26570
- 1.8 If applicable, the engine is a parent engine ☐ or a member engine ☒ of the following engine family ☐ or engine group ☒ Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO_x Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001 (Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO_x reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO_x Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO_x Emission Value (g/kWh) E2: 10.4 g/kWh

2 Particulars of the Technical File*

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00010

2.2 Technical File approval date 7 December 2009

* The Technical File, as required by chapter 2 of NO_x Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

3 Specifications for the On-board NO_x Verification Procedures for the Engine Parameter Survey**

3.1 On-board NO_x verification procedures identification/approval number ABSLD-NTC-1248-0100-00010

3.2 On-board NO_x verification procedures approval date 7 December 2009

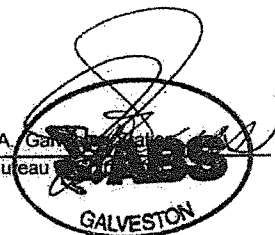
** The specifications for the on-board NO_x verification procedures, as required by chapter 6 of the NO_x Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A. Galveston
Surveyor, American Bureau



ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction, Technical File and Means of Verification)

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Commonwealth of The Bahamas
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wartsila Italia S.p.A.	Wartsila W8L26A	26568	E2	263.5 kW 900 rpm	ABSLD-NTC-1248-0100-00008

THIS IS TO CERTIFY:

1. That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
2. That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston
Surveyor, American Bureau of Shipping



SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE (EIAPP CERTIFICATE)

RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO_x Technical Code").

Notes:

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3. Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and Means of Verification refer to mandatory requirements of the NO_x Technical Code.

1 Particulars of the engine

1.1 Name and address of manufacturer

Name	Wärtsilä Italia S.p.A
Address	Bagnoli della Rosandra, 334 34018 San Dorligo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.6 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 26568
- 1.8 If applicable, the engine is a parent engine ☐ or a member engine ☒ of the following engine family ☐ or engine group ☒ Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO_x Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001(Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO_x reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO_x Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO_x Emission Value (g/kWh) E2: 10.4 g/kWh

2 Particulars of the Technical File*

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00008

2.2 Technical File approval date 7 December 2009

- * The Technical File, as required by chapter 2 of NO_x Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

3 Specifications for the On-board NO_x Verification Procedures for the Engine Parameter Survey**

3.1 On-board NO_x verification procedures identification/approval number ABSLD-NTC-1248-0100-00008

3.2 On-board NO_x verification procedures approval date 7 December 2009

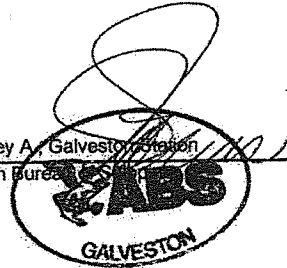
- ** The specifications for the on-board NO_x verification procedures, as required by chapter 6 of the NO_x Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A. Galveston Station
Surveyor, American Bureau of Shipping



ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction, Technical File and Means of Verification)

Issued under the provisions of the Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

Commonwealth of The Bahamas
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wartsila Italia S.p.A.	Wartsila W8L26A	26567	E2	263.5 kW 900 rpm	ABSLD-NTC-1248-0100-00007

THIS IS TO CERTIFY:

1. That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
2. That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

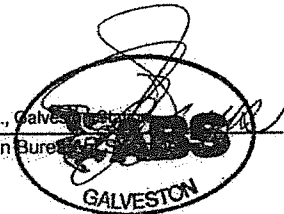
This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



ABS

Reeves, Jeffrey A., Galveston, Texas
Surveyor, American Bureau of Shipping



SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION

CERTIFICATE (EIAPP CERTIFICATE)

RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO_x Technical Code").

Notes:

1. This Record and its attachments shall be permanently attached to the EIAPP Certificate. The EIAPP Certificate shall accompany the engine throughout its life and shall be available on board the ship at all times.
2. If the language of the original Record is neither English nor French, the text shall include a translation into one of these languages.
3. Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and Means of Verification refer to mandatory requirements of the NO_x Technical Code.

1 Particulars of the engine

1.1 Name and address of manufacturer

Name	Wärtsilä Italia S.p.A
Address	Bagnoli della Rosandra, 334 34018 San Dorligo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.6 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 26567
- 1.8 If applicable, the engine is a parent engine ☐ or a member engine ☒ of the following engine family ☐ or engine group ☒ Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO_x Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001(Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO_x reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO_x Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO_x Emission Value (g/kWh) E2: 10.4 g/kWh

2 Particulars of the Technical File*

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00007

2.2 Technical File approval date 7 December 2009

* The Technical File, as required by chapter 2 of NO_x Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

3 Specifications for the On-board NO_x Verification Procedures for the Engine Parameter Survey**

3.1 On-board NO_x verification procedures identification/approval number ABSLD-NTC-1248-0100-00007

3.2 On-board NO_x verification procedures approval date 7 December 2009

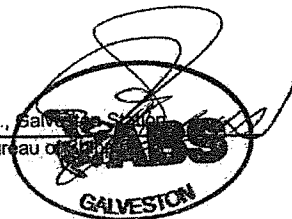
** The specifications for the on-board NO_x verification procedures, as required by chapter 6 of the NO_x Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston Station
Surveyor, American Bureau of Shipping

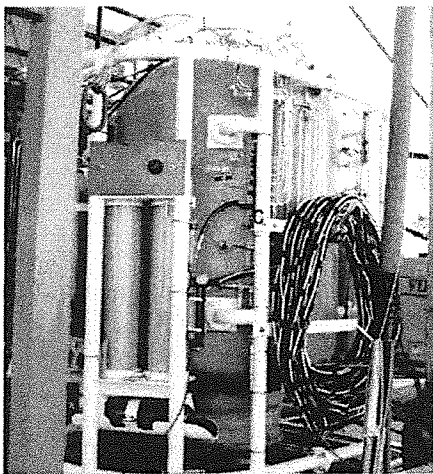
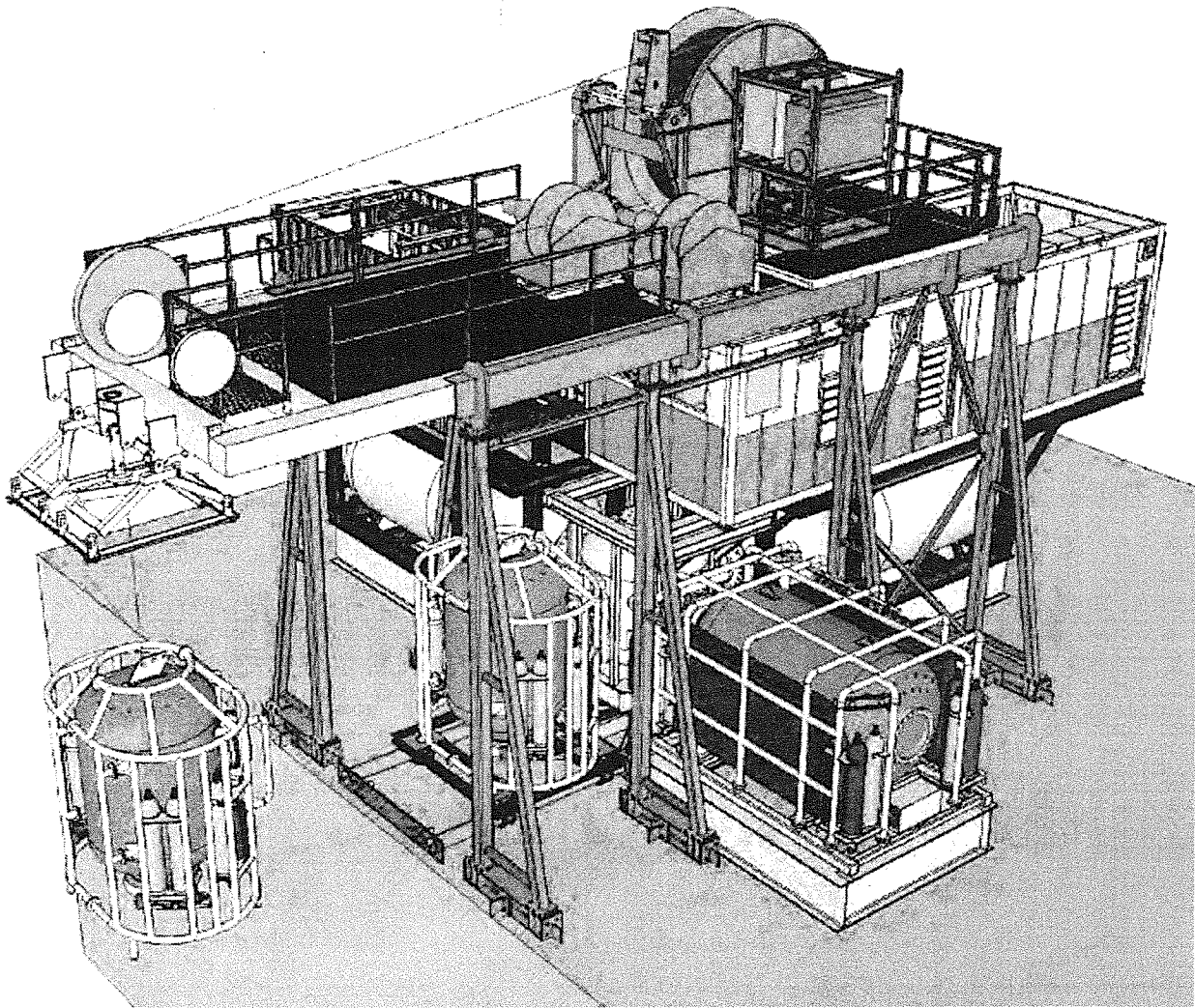


Intrepid

Reeled Pipelay Vessel with Saturation Diving System



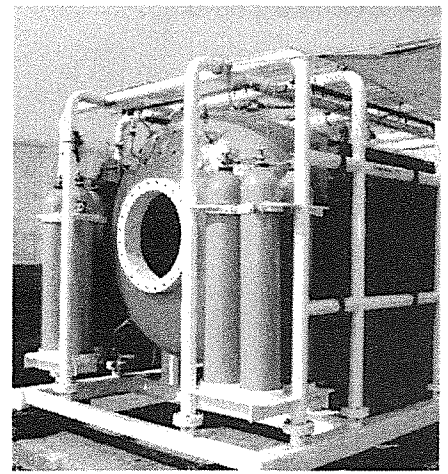
Intrepid saturation diving system configuration



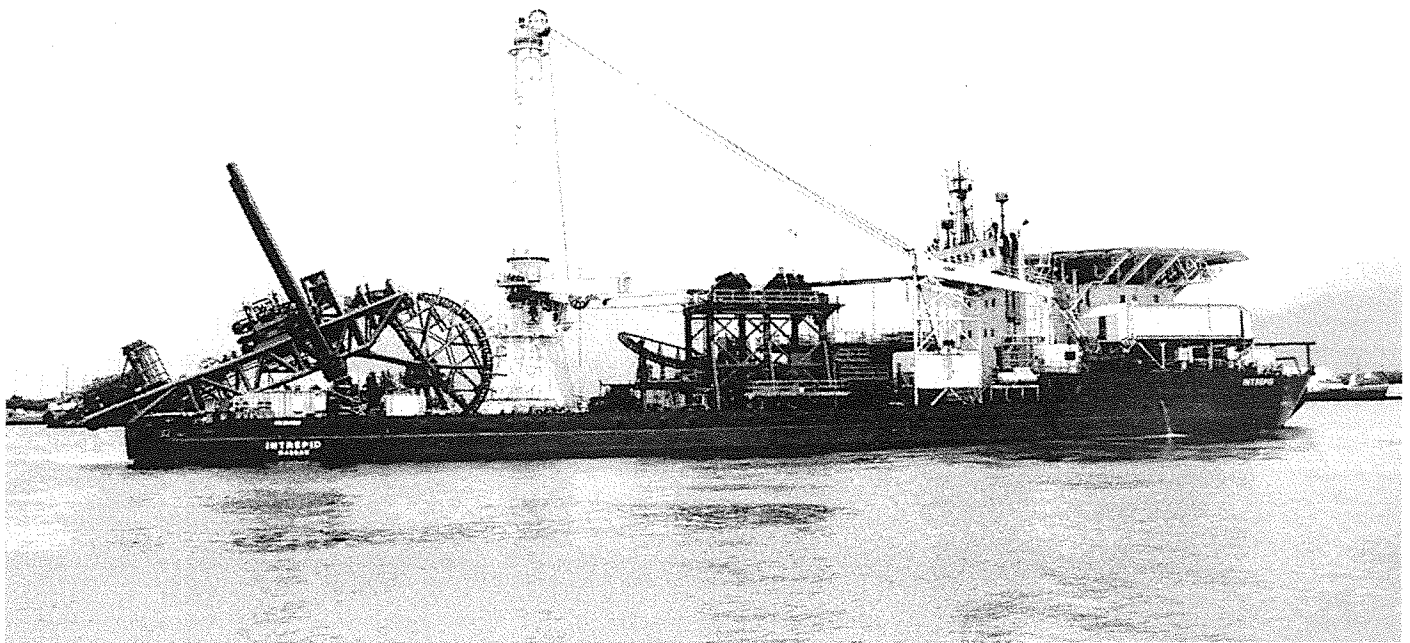
Thermatech 3-man Diving Bell



Perry Submarine Split Lock



Thermatech Hyperbaric
Rescue Chamber



The premier reeled pipelay vessel in the Gulf of Mexico, the Intrepid is a 380 foot long carousel reel specialty platform for laying small diameter pipeline. Extremely efficient in deploying umbilicals, flexible risers and flowlines, the vessel has laid pipe in water depths exceeding 7,000 ft. with its deepwater crane, capable of reaching depths of 10,000 feet.

Saturation Diving

The Intrepid's Nautilus 1000' ABS Class / IMCA Compliant Saturation Diving System with rescue chamber consists of the following systems:

- Secondary Life Support System
- Mixed Gas/Air package
- Surface Diver LARS (2x)
- Surface Diver Deck Decompression Chambers
- Jetting Package
- Underwater Burning Package
- 50/120 Dive Compressors (2x)
- Surface Diver Control Van
- U/W Video Packages (2x)
- Generator

Rigid / Flexible Pipelay & Umbilical Installation

Equipped with a state-of-the-art carousel reel system, the Intrepid can install a variety of products safely and efficiently in deep waters.

Jumper Installation

The vessel's large deck space and facilities allow for large jumpers to be fabricated offshore, thereby minimizing installation time.

Subsea Components

The vessel is equipped with a crane capable of deploying payloads to a depth of 3,000 m on a single fall, and 1,525 m on double fall.

Main Crane

Main Hoist Traction Winch with 2 Falls

Min. Radius. 8.7 - 8.8 m
 Max. Radius. 39 - 39.6 m
 Hoisting Capacity at Harbor / Sheltered Waters Lift
 400 mT @ 16 m.
 Hoisting Speed 0 - 59.1 ft. per min.

Main Hoist Traction Winch with 1 Fall

Min. Radius. 7.8 m
 Max. Radius. 37 m
 Max. Hook Travel 3,000 m
 Hoisting Capacity at Harbor Lift. 200 mT
 Hoisting Speed. 0 - 118.1 ft. per min.

Pipelay System

Product Capability. 3.5" - 10" O.D.
 Carousel Loading Capability. 1,550 mT

Tensioners

Main (4-track) 120 mT
 No. 2 (2-track) 18 mT
 Hang Off/Friction Clamp 200 mT

A/R Winch

Capacity. 200 mT
 Wire Rope Length. 3,000 m

ROVs

2x Triton XLS Work-Class ROVs, rated to 3,000 m depth

Helideck

Approved by ABS for 11.34 mT
 Accommodates S061 aircraft

(vessel specifications continued on reverse)

Dimensions

Overall Length.....	116.3 m
BP	111.6 m
Breadth Moulded	31.9 m
Depth Moulded	7.6 m
Gross Tonnage	7,995.4 tons (7,217 mT)
Net Tonnage	2,386.5 tons (2,165 mT)
Lightship Displacement	8,131.8 tons (7,337 mT)
Max. Moulded Draft	5.6 m
Displacement at Summer	14,301.4 tons (12,974 mT)

Capacities

Deck Space	1,647 m ²
Moonpool Dimension.....	978.3 ft ² (48.9 ft x 20 ft.)
Water Ballast Tanks	6,130 m ³
Fresh Water Tanks	219 m ³
Max. Deck Load	4,000 mT
Fuel Oil Tanks	1,463 m ³
Fuel Oil Day Tanks	2 x 10 m ³
Fuel Oil Set Tanks.....	2 x 15 m ³
Lube Oil Tanks	2 x 4.6 m ³
Soil Transfer Tank	23.5 m ³
Slop Tank	23.5 m ³

Propulsion

8 Lips type FS 500/-226/500 MNR thrusters, 1,100 HP
(820 kW) fully azimuthing, fixed pitch, variable speed

Dynamic Positioning System

DP-2 redundant system, Kongsberg Simrad DSP-
2122, consisting of 2 process computers
Joystick control available from main operator's
console, forward bridge and two remote stations

Accommodations

Total Bunks	89
Marine Crew	42
ROV Crew	13
Project Crew	20
Other	14



Changing the way you succeed.

Helix Energy Solutions Group, Inc.
400 North Sam Houston Pkwy. East
Houston, Texas 77060
Phone: 281-618-0400
www.helixesg.com

Engine Information

Engine Description

Older 3408 and 3412 models may be precombustion chamber (PC) type engines. Newer 3408 and 3412 models are direct injection (DI) engines.

A mechanical governor controls the fuel injection pump output to maintain the engine rpm selected by the operator. The fuel injection pump meters and pumps fuel under high pressure to a fuel injection nozzle for each cylinder. An automatic timing device advances or retards fuel injection to provide the best fuel injection timing over the full range of engine speed.

The air/fuel ratio control, located on the governor, restricts the movement of the fuel rack, allowing only the proper amount of fuel to be injected into the cylinders during acceleration, to minimize exhaust smoke.

These engines are available as turbocharged (T) or turbocharged and aftercooled (TA). Inlet air is filtered by an air cleaner before entering the engine cylinders. In turbocharged engines, the filtered inlet air is compressed by a turbocharger before entering the engine cylinders. The turbocharger is driven by the engine exhaust.

There are four in-head valves (two inlet valves and two exhaust valves) for each cylinder. The camshaft actuates the rocker arms and the valves through mechanical lifters and push rods.

The jacket water cooling system uses an expansion tank and a gear driven centrifugal water pump. The engine coolant is circulated by passing through the oil cooler first, then to the engine block and cylinder head. One water temperature regulator for each cylinder bank regulates engine coolant temperature by restricting coolant flow for quick engine warm-up. The regulator opens to allow free circulation of coolant after operating temperature has been reached.

The watercooled exhaust manifolds, risers and turbochargers are designed to minimize radiated heat in the engine room.

Lubrication of the engine is accomplished by a gear-type pump and bypass valves. The pump provides full pressure lubrication to the engine internal and external parts. The engine lubricating oil (both cooled and filtered) provides unrestricted flow to engine parts when oil viscosity is high or if the oil cooler is restricted or if the oil filter elements become plugged.

The engines are available with SAE standard counterclockwise rotation (CCW when viewed from rear of engine). The engines can be equipped with either the SAE No.1 flywheel or the SAE No.0 flywheel to mate with various marine gears. Several marine gear manufacturers offer marine transmissions for the engines through local distributors.

Engine Specifications

3408 Engine

3408 Marine Engine Specifications	
Configuration	65° V-8
Bore	137 mm (5.4 in)
Stroke	152 mm (6.0 in)
Displacement	18 liter (1099 cu in)
Compression Ratio ¹	14.5:1
Aspiration	Turbocharged (T) and Aftercooled (TA)
Firing Order	1-8-4-3-6-5-7-2
Rotation (viewed from flywheel end of engine)	Counterclockwise (CCW)
Length ²	1482.0 mm (58.35 in)
Height ²	1308.7 mm (51.52 in)
Width ²	1328.0 mm (52.30 in)

¹ This ratio is for the highest rating available.

² Refer to the General Dimension Drawing available for your engine for installation and engine envelope dimensions.

ON BOARD DISCONNECTED

3412 Marine Engine Specifications	
Configuration	65° V-12
Bore	137 mm (5.4 in)
Stroke	152 mm (6.0 in)
Displacement	27 liter (1649 cu in)
Compression Ratio ¹	14.5:1
Aspiration	Turbocharged (T) and Aftercooled (TA)
Firing Order	1,4,9,8,5,2, 11,10,3,6,7,12
Rotation (viewed from flywheel end of engine)	Counterclockwise (CCW)
Length ²	1808.0 mm (71.18 in)
Height ²	1311.9 mm (51.65 in)
Width ² (Max.) mt.Width ² (Min.)	1531.0 mm (60.28 in) 1354.2 mm (53.32 in)

¹ This ratio is for the highest rating available.

² Refer to the General Dimension Drawing available for your engine for installation and engine envelope dimensions.

NAPIER TURBOCHARGER

TYPE NAPIER 297/357

SPECIFICATION

Type	Max. Permissible Speed (R.P.M.)	Pressure Ratio	Max. Turbine Inlet Temperature	Weight
NAPIER 297	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	5:1	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	774 kgs approx.
NAPIER 357	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	5:1	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	

NAMEPLATES

The turbocharger has a name plate mounted on the main casing. The information shown on this name plate is explained overleaf. (Example only)

EUROPEAN GAS TURBINES LTD.														
TYPE: NAPIER	297	FRAME LETTER	EJ											
SPECIFICATION	4GS87B125M													
SERIAL No.	1234													
○ MAX. SPEED	29500										R.P.M.			○
MAX. TEMP	650										°C			
ALTERATION RECORD														
M K	1	2	3	4	5	6	7	8	9	10	11	12	13	
	14	15	16	17	18	19	20	21	22	23	24	25	26	



Linda S. Adams
Secretary for
Environmental Protection

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov



Arnold Schwarzenegger
Governor

Statewide Portable Equipment Registration

Registration No: 152792

Legal Owner or Operator:

Quinn Power Systems, Inc

Mailing Address:

3500 Shepherd Street
City of Industry, CA 90601

Engine Description:

Certified non-road portable internal combustion engine, compression ignition, Caterpillar, model C9, Serial No: JSC15607, (Unit Number: PR959), rated at 300 bhp and diesel fueled.

U.S. EPA Engine Family Name:

ACPXL08.8ESK

Conditions:

see attached

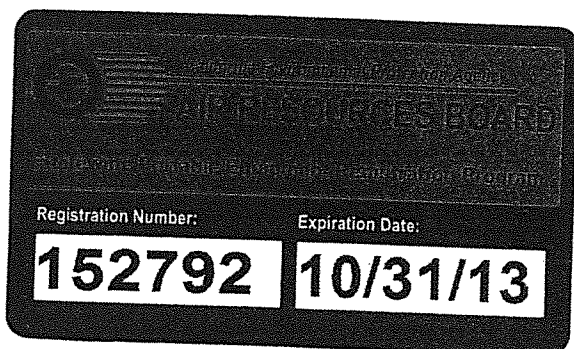
Home District:

South Coast Air Quality Management
District

Engine Inspection Discount:

No inspection discount claimed

Expiration Date: October 31, 2013



Jorge Fernandez
Chief, Program Evaluation Branch
Stationary Source Division

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

Printed on Recycled Paper

Statewide Portable Equipment Registration

The following operating conditions apply for registration 152792

Engine Serial No.: JSC15607

General Requirements

1. The engine shall be properly maintained and kept in good operating condition at all times.
2. The registration identification sticker shall be affixed in a visible location on the registered portable engine at all times. The metal placard shall be securely affixed on a vertical surface of the portable engine in a location that is readily visible from a distance. A legible copy of the registration certificate and operating conditions shall be kept on site with the portable engine and shall be made accessible to the Air Resources Board or district representative upon request.
3. Engine fuel shall meet standards for California motor vehicle fuels as set forth in Chapter 5, Division 3, Title 13, of the California Code of Regulations, or shall have been verified through the In-Use Strategies to Control Emissions From Diesel Engines verification procedure per Title 13 of the California Code of Regulations commencing with section 2700.
4. The engine and any replacement engine shall not reside at the same location for more than 12 consecutive months.
5. The operation of this engine shall not cause a public nuisance.
6. The engine shall be equipped with operational and properly maintained non-resettable hour time meter.
7. For each rental engine or an engine used in a third party rental transaction, the owner shall provide each person who rents the portable engine with a copy of the registration certificate, including operating conditions, as part of the rental agreement.
8. The operator of a portable engine or equipment unit shall obtain district authorization prior to operation at any specific location where the Statewide registration is not valid.
9. This registration is not valid for operation within the boundaries of the California Outer Continental Shelf and State Territorial Waters.
10. The portable engine shall not be operated under both statewide registration and a district permit at any specific location.
11. This registration is not valid for operation of an engine that powers an equipment unit that has been determined by the Air Resources Board to qualify as part of a stationary source permitted by a district.
12. Except for engines owned by a rental business, the owner/operator of this engine shall contact the local air district prior to operation at an agricultural source.
13. For each rental engine or an engine used in a third party rental transaction, a written copy of the rental or lease agreement must be kept onsite at all times.

The following operating conditions apply for registration 152792
Engine Serial No.: JSC15607

Emission Limitations

14. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent to 20% opacity.

Recordkeeping

15. Recordkeeping requirements applicable to a rental engine or an engine that is part of a third party rental transaction shall include the registration number of the engine; date of the start and end of the rental transaction; hours of operation for each rental period; location of use (by district, county or specific location); and written (signed) acknowledgment by each renter of having received the registration certificate and operating conditions. These records shall be maintained at a central location for a minimum of five years, and made accessible to the Air Resources Board or districts upon request.
16. For non-rental engines operating together as a project, records for each project shall be maintained separately for each project and shall consist of the following: the registration number; recordings from an hour meter, fuel meter, or other approved device; the location of the project identified by district, county or specific location; and the dates of the recordings. Readings from the meters shall be recorded prior to the commencement of the operation and at the completion of the project, or if operating at multiple locations within a stationary source, readings shall be recorded at the beginning and end of each calendar week.
17. All records shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.
18. Records shall be kept when the engine is undergoing service, repair, or maintenance that include recordings from an hour meter, fuel meter, or other approved device and the dates of such recordings.

Reporting & Notification

19. When this engine is sold, the new owner shall submit a change of ownership application within 30 days of the change in ownership. If an application is not received within 30 days of the ownership change, the existing registration is not valid for the new owner until the application has been filed and all applicable fees have been paid.

The following operating conditions apply for registration 152792

Engine Serial No.: JSC15607

20. Starting in 2008, the owner of a registered engine shall provide the Air Resources Board with an annual report by March 1st after the end of the reporting year which is signed by the designated responsible official and consisting of: the reporting year, registration number of each engine, and quarterly summaries of either total hours of operation or fuel usage by district or county.
21. Starting in 2008, the owner of a registered rental engine or an engine used in a third party rental transaction shall provide the Air Resources Board with an annual report by March 1st after the end of the reporting year which is signed by the designated responsible official and consisting of: the reporting year, registration number of each engine, and total annual hours of operation for that reporting year, beginning and ending hour meter readings, dates hour meter readings were recorded, list of all counties of operation, and an estimate of the percentage of total hours operated in each listed county.
22. The owner of a registered portable engine shall notify the Executive Officer in writing within five days of replacing the registered portable engine with an identical replacement. The notification shall include company name, the responsible official, phone number, registration number, make, model, rated brake horsepower, and serial number of the identical replacement, description of the mechanical breakdown, and applicable fees.

Fleet Average Requirements

23. Except for low-use engines and engines used exclusively in emergency applications, for engines greater than or equal to 175 bhp but less than or equal to 750 bhp, a weighted fleet average PM emission factor of 0.15 g/bhp-hr shall be met by **January 1, 2013**, 0.08 g/bhp-hr shall be met by **January 1, 2017**, and 0.02 g/bhp-hr shall be met by **January 1, 2020**. Changes in the fleet, including engine additions and deletions, shall not result in noncompliance with this standard.
24. The weighted fleet average PM emission factor shall be calculated by taking the summation of the emission factor for each engine in the fleet multiplied by the bhp rating for each engine and then dividing that summation by the summation of the bhp ratings for all the engines in the fleet.
25. The weighted fleet average PM emission factor calculation shall use the test results from nonroad emission standard certification, test results from a verified emission control strategy as defined in Title 13 of the California Code of Regulations Section 93116.2, or the test results from a SCR system. All test results shall be made available to the Air Resources Board upon request.
26. Where equipment uses grid power for more than 200 hours in lieu of operating a portable diesel engine for a given project, the time period grid power is used may be used to reduce each affected engine's emission factor. The emission factor for each affected portable engine shall be reduced proportionally by the percentage of time the equipment uses grid power.

The following operating conditions apply for registration 152792

Engine Serial No.: JSC15607

27. The weighted fleet average PM emission factor shall include all portable engines, including those permitted or registered with a local air district, that are owned and managed by an individual operational entity, such as a business, business unit within a corporation, or individual city or state department under the control of a Responsible Official. Engines that are owned by different business entities that are under the common control of only one Responsible Official shall be treated as a single fleet.

Fleet Recordkeeping

28. Starting January 1, 2012, the responsible official of a fleet shall keep records of annual operating hours for non-diesel fueled portable engines used as part of a company's fleet average, engines affected by the use of electrification, low-use engines, and engines used exclusively in emergency applications.
29. All records pertaining to the fleet average shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.

Fleet Reporting and Notification

30. The Responsible Official of a fleet shall submit to the Air Resources Board the fleet's weighted average PM emission rate for the 2010 calendar year, including an inventory of portable engines in the fleet, by March 1, 2011. The engine inventory shall include make, model, serial number, year of manufacture, primary fuel type, PM emission factor (g/bhp-hr), and district permit or State registration number for each engine to be used in the fleet average determination.
31. The Responsible Official of a fleet shall submit to the Air Resources Board by March 1, 2011 a list of all low-use engine, engines used exclusively in emergency operations, and alternative-fueled engines added to the fleet prior to January 1, 2009. The list shall include for each engine: make, model, serial number, and district permit or State registration number.
32. The Responsible Official of a fleet shall submit to the Air Resources Board by March 1, 2013, March 1, 2017, and March 1, 2020 a signed statement of compliance that the fleet standards are being achieved. The Statement of compliance shall include for each engine in the fleet: make, model, serial number, fuel type, PM emission factor (g/bhp-hr), and district permit or State registration number. If compliance with the fleet average includes the use of electrification, the Responsible Official shall provide documentation supporting the credit claimed for electrification.

The following operating conditions apply for registration 152792
Engine Serial No.: JSC15607

33. As part of each statement of compliance, the Responsible Official shall, if applicable, certify that all alternative-fueled engines included in the fleet average operated at least 100 hours during the previous 12 months prior to the fleet emission standard becoming effective, for all engines exclusively used in emergency applications, the engines were used only for emergency applications, for all engines using the low-use designation, the engines operated no more than 80 hours for the reporting period, and for all portable diesel-fueled engines equipped with SCR, the engine complies with applicable district or Statewide Portable Equipment Registration Program requirements.
34. The Responsible Official of a fleet electing to use electrification in determining the fleet average shall notify prior to the start of the project the Executive Officer of the dates, location of the project, and make, model, serial number, district permit or State registration number of the affected engines. In addition, the notification shall clearly identify the electrification activity, including indicating the amount of electricity used and the time period for the project.

Inspection Requirements

35. Within 45 days after initial issuance or renewal of a registration, the owner or operator shall contact the home district to arrange for inspection to be completed within one year of the initial registration or renewal date. If the engine is operating in a district other than the home district, the owner or operator may request the home district to arrange an inspection by that other district.
36. For the purposes of scheduling inspections of multiple engines in order to qualify for an inspection fee discount, the owner or operator shall submit, within 45 days of initial registration issuance date or by January 30 of each year for renewals, a letter of intent to the home district that shall include an engine list with registration numbers of those to be inspected.
37. The time for the arranged inspection shall be agreed upon in advance between the district and the company. To the extent that an arranged inspection does not fall within the district's normal workday, the district may charge for the off-hour time.
38. If an arranged inspection does not occur due to unforeseen circumstances, the inspection shall be rescheduled for no later than 90 days from the initially scheduled inspection.
39. If the engine is out of California for one year or more following initial registration or renewal, the engine shall be excused from having the arranged inspection provided that within 45 days after the date of initial registration or renewal, the owner sends a letter to the district containing the registration number and a statement that the registered engine or equipment unit is out of California for the one-year period. Upon the return of the engine to California, the owner shall arrange to have the engine inspected within 30 days.



Linda S. Adams
Secretary for
Environmental Protection

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov



Arnold Schwarzenegger
Governor

Statewide Portable Equipment Registration

Registration No: 153207

Legal Owner or Operator:

Quinn Power Systems, Inc

Mailing Address:

3500 Shepherd Street
City of Industry, CA 90601

Engine Description:

Certified portable internal combustion engine, compression ignition, Caterpillar, model C9, Serial No: JSC16776, (Unit Number: PR961), rated at 300 bhp and diesel fueled.

U.S. EPA Engine Family Name:

ACPXL08.8ESK

Conditions:

see attached

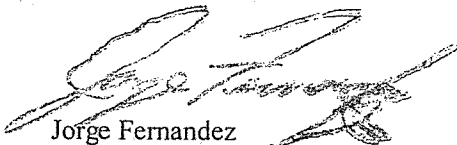
Home District:

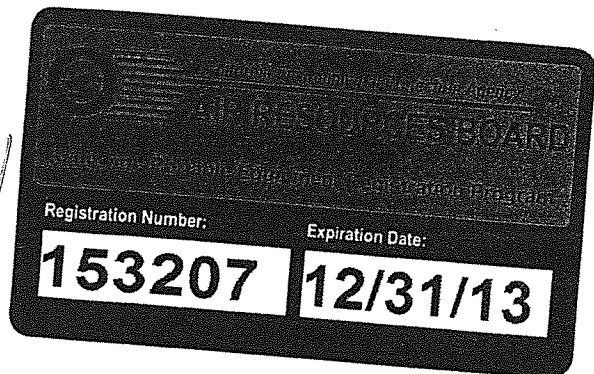
South Coast Air Quality Management
District

Engine Inspection Discount:

No inspection discount claimed

Expiration Date: December 31, 2013


Jorge Fernandez
Chief, Program Evaluation Branch
Stationary Source Division



The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption.
For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

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Statewide Portable Equipment Registration

The following operating conditions apply for registration 153207
Engine Serial No.: JSC16776

General Requirements

1. The engine shall be properly maintained and kept in good operating condition at all times.
2. The registration identification sticker shall be affixed in a visible location on the registered portable engine at all times. The metal placard shall be securely affixed on a vertical surface of the portable engine in a location that is readily visible from a distance. A legible copy of the registration certificate and operating conditions shall be kept on site with the portable engine and shall be made accessible to the Air Resources Board or district representative upon request.
3. Engine fuel shall meet standards for California motor vehicle fuels as set forth in Chapter 5, Division 3, Title 13, of the California Code of Regulations, or shall have been verified through the In-Use Strategies to Control Emissions From Diesel Engines verification procedure per Title 13 of the California Code of Regulations commencing with section 2700.
4. The engine and any replacement engine shall not reside at the same location for more than 12 consecutive months.
5. The operation of this engine shall not cause a public nuisance.
6. The engine shall be equipped with operational and properly maintained non-resettable hour time meter.
7. For each rental engine or an engine used in a third party rental transaction, the owner shall provide each person who rents the portable engine with a copy of the registration certificate, including operating conditions, as part of the rental agreement.
8. The operator of a portable engine or equipment unit shall obtain district authorization prior to operation at any specific location where the Statewide registration is not valid.
9. This registration is not valid for operation within the boundaries of the California Outer Continental Shelf and State Territorial Waters.
10. The portable engine shall not be operated under both statewide registration and a district permit at any specific location.
11. This registration is not valid for operation of an engine that powers an equipment unit that has been determined by the Air Resources Board to qualify as part of a stationary source permitted by a district.
12. Except for engines owned by a rental business, the owner/operator of this engine shall contact the local air district prior to operation at an agricultural source.
13. For each rental engine or an engine used in a third party rental transaction, a written copy of the rental or lease agreement must be kept onsite at all times.

The following operating conditions apply for registration 153207
Engine Serial No.: JSC16776

Emission Limitations

14. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann 1 or equivalent to 20% opacity.

Recordkeeping

15. Recordkeeping requirements applicable to a rental engine or an engine that is part of a third party rental transaction shall include the registration number of the engine; date of the start and end of the rental transaction; hours of operation for each rental period; location of use (by district, county or specific location); and written (signed) acknowledgment by each renter of having received the registration certificate and operating conditions. These records shall be maintained at a central location for a minimum of five years, and made accessible to the Air Resources Board or districts upon request.
16. For non-rental engines operating together as a project, records for each project shall be maintained separately for each project and shall consist of the following: the registration number; recordings from an hour meter, fuel meter, or other approved device; the location of the project identified by district, county or specific location; and the dates of the recordings. Readings from the meters shall be recorded prior to the commencement of the operation and at the completion of the project, or if operating at multiple locations within a stationary source, readings shall be recorded at the beginning and end of each calendar week.
17. All records shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.
18. Records shall be kept when the engine is undergoing service, repair, or maintenance that include recordings from an hour meter, fuel meter, or other approved device and the dates of such recordings.

Reporting & Notification

19. When this engine is sold, the new owner shall submit a change of ownership application within 30 days of the change in ownership. If an application is not received within 30 days of the ownership change, the existing registration is not valid for the new owner until the application has been filed and all applicable fees have been paid.

The following operating conditions apply for registration 153207
Engine Serial No.: JSC16776

20. Starting in 2008, the owner of a registered engine shall provide the Air Resources Board with an annual report by March 1st after the end of the reporting year which is signed by the designated responsible official and consisting of: the reporting year, registration number of each engine, and quarterly summaries of either total hours of operation or fuel usage by district or county.
21. Starting in 2008, the owner of a registered rental engine or an engine used in a third party rental transaction shall provide the Air Resources Board with an annual report by March 1st after the end of the reporting year which is signed by the designated responsible official and consisting of: the reporting year, registration number of each engine, and total annual hours of operation for that reporting year, beginning and ending hour meter readings, dates hour meter readings were recorded, list of all counties of operation, and an estimate of the percentage of total hours operated in each listed county.
22. The owner of a registered portable engine shall notify the Executive Officer in writing within five days of replacing the registered portable engine with an identical replacement. The notification shall include company name, the responsible official, phone number, registration number, make, model, rated brake horsepower, and serial number of the identical replacement, description of the mechanical breakdown, and applicable fees.

Fleet Average Requirements

23. Except for low-use engines and engines used exclusively in emergency applications, for engines greater than or equal to 175 bhp but less than or equal to 750 bhp, a weighted fleet average PM emission factor of 0.15 g/bhp-hr shall be met by **January 1, 2013**, 0.08 g/bhp-hr shall be met by **January 1, 2017**, and 0.02 g/bhp-hr shall be met by **January 1, 2020**. Changes in the fleet, including engine additions and deletions, shall not result in noncompliance with this standard.
24. The weighted fleet average PM emission factor shall be calculated by taking the summation of the emission factor for each engine in the fleet multiplied by the bhp rating for each engine and then dividing that summation by the summation of the bhp ratings for all the engines in the fleet.
25. The weighted fleet average PM emission factor calculation shall use the test results from nonroad emission standard certification, test results from a verified emission control strategy as defined in Title 13 of the California Code of Regulations Section 93116.2, or the test results from a SCR system. All test results shall be made available to the Air Resources Board upon request.
26. Where equipment uses grid power for more than 200 hours in lieu of operating a portable diesel engine for a given project, the time period grid power is used may be used to reduce each affected engine's emission factor. The emission factor for each affected portable engine shall be reduced proportionally by the percentage of time the equipment uses grid power.

The following operating conditions apply for registration 153207
Engine Serial No.: JSC16776

27. The weighted fleet average PM emission factor shall include all portable engines, including those permitted or registered with a local air district, that are owned and managed by an individual operational entity, such as a business, business unit within a corporation, or individual city or state department under the control of a Responsible Official. Engines that are owned by different business entities that are under the common control of only one Responsible Official shall be treated as a single fleet.

Fleet Recordkeeping

28. Starting January 1, 2012, the responsible official of a fleet shall keep records of annual operating hours for non-diesel fueled portable engines used as part of a company's fleet average, engines affected by the use of electrification, low-use engines, and engines used exclusively in emergency applications.
29. All records pertaining to the fleet average shall be maintained at a central place of business for a minimum of five years, and made accessible to the Air Resources Board or district representative upon request.

Fleet Reporting and Notification

30. The Responsible Official of a fleet shall submit to the Air Resources Board the fleet's weighted average PM emission rate for the 2010 calendar year, including an inventory of portable engines in the fleet, by March 1, 2011. The engine inventory shall include make, model, serial number, year of manufacture, primary fuel type, PM emission factor (g/bhp-hr), and district permit or State registration number for each engine to be used in the fleet average determination.
31. The Responsible Official of a fleet shall submit to the Air Resources Board by March 1, 2011 a list of all low-use engine, engines used exclusively in emergency operations, and alternative-fueled engines added to the fleet prior to January 1, 2009. The list shall include for each engine: make, model, serial number, and district permit or State registration number.
32. The Responsible Official of a fleet shall submit to the Air Resources Board by March 1, 2013, March 1, 2017, and March 1, 2020 a signed statement of compliance that the fleet standards are being achieved. The Statement of compliance shall include for each engine in the fleet: make, model, serial number, fuel type, PM emission factor (g/bhp-hr), and district permit or State registration number. If compliance with the fleet average includes the use of electrification, the Responsible Official shall provide documentation supporting the credit claimed for electrification.

The following operating conditions apply for registration 153207
Engine Serial No.: JSC16776

33. As part of each statement of compliance, the Responsible Official shall, if applicable, certify that all alternative-fueled engines included in the fleet average operated at least 100 hours during the previous 12 months prior to the fleet emission standard becoming effective, for all engines exclusively used in emergency applications, the engines were used only for emergency applications, for all engines using the low-use designation, the engines operated no more than 80 hours for the reporting period, and for all portable diesel-fueled engines equipped with SCR, the engine complies with applicable district or Statewide Portable Equipment Registration Program requirements.
34. The Responsible Official of a fleet electing to use electrification in determining the fleet average shall notify prior to the start of the project the Executive Officer of the dates, location of the project, and make, model, serial number, district permit or State registration number of the affected engines. In addition, the notification shall clearly identify the electrification activity, including indicating the amount of electricity used and the time period for the project.

Inspection Requirements

35. Within 45 days after initial issuance or renewal of a registration, the owner or operator shall contact the home district to arrange for inspection to be completed within one year of the initial registration or renewal date. If the engine is operating in a district other than the home district, the owner or operator may request the home district to arrange an inspection by that other district.
36. For the purposes of scheduling inspections of multiple engines in order to qualify for an inspection fee discount, the owner or operator shall submit, within 45 days of initial registration issuance date or by January 30 of each year for renewals, a letter of intent to the home district that shall include an engine list with registration numbers of those to be inspected.
37. The time for the arranged inspection shall be agreed upon in advance between the district and the company. To the extent that an arranged inspection does not fall within the district's normal workday, the district may charge for the off-hour time.
38. If an arranged inspection does not occur due to unforeseen circumstances, the inspection shall be rescheduled for no later than 90 days from the initially scheduled inspection.
39. If the engine is out of California for one year or more following initial registration or renewal, the engine shall be excused from having the arranged inspection provided that within 45 days after the date of initial registration or renewal, the owner sends a letter to the district containing the registration number and a statement that the registered engine or equipment unit is out of California for the one-year period. Upon the return of the engine to California, the owner shall arrange to have the engine inspected within 30 days.

DATA [JSC15607]

OCTOBER 01, 2010

For Help Desk Phone Numbers [Click here](#)

Engine Emissions Data

For Emissions feedback and questions contact: engine_certification@cat.com

This link is case sensitive.

Emissions Definitions

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	JSC15607
Sales Model	C9
Build Date	2010-08-10
Interlock Code Progression	No Interlock Code Progression
As Shipped Data	
Engine Arrangement Number	2524430
Certification Arrangement	
Test Spec Number	OK4893
Certification	IMO Compliant
Labeled Model Year	2010
Family Code	ACPXL08.8ESK
Family Certification	EPA Tier 3
Family Certification	EU Stage IIIA
Family Certification	
Flash File	3112459
Flash File Progression	3112459
CORR FL Power at RPM	300 HP (224.0 KW) at 2200 rpms
Advertised Power	300hp 2,200RPM
Liters	

This is not an official emission certificate. This is for emission data information only.

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 Web Master(s): [PSG Web Based Systems Support](#)
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EMISSIONS DATA [JSC16776]**NOVEMBER 17, 2010**For Help Desk Phone Numbers [Click here](#)**Engine Emissions Data**For Emissions feedback and questions contact: engine_certification@cat.com

This link is case sensitive.

Emissions Definitions

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	JSC16776
Sales Model	C9
Build Date	2010-09-22
Interlock Code Progression	No Interlock Code Progression

As Shipped Data

Engine Arrangement Number	2524430
Certification Arrangement	
Test Spec Number	0K4893
Certification	EPA/CARB/EU/China
Labeled Model Year	2010
Family Code	ACPXL08.8ESK
Family Certification	EPA Tier 3
Family Certification	EU Stage IIIA
Family Certification	
Flash File	3112459
Flash File Progression	3112459
CORR FL Power at RPM	300 HP (224.0 KW) at 2200 rpms
Advertised Power	300hp 2,200RPM
Liters	

This is not an official emission certificate. This is for emission data information only.

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 Current Date: Wednesday, November 17, 2010 10:16:19 AM
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1.0.1. Basic information

Project name	CAL. DIVE
Engine designation number	26567 – 26568 – 26569 – 26570

Engine type	8L26
Cylinder bore	260 mm
Stroke	320 mm
Number of cylinders	8
Direction of rotation	Clockwise
Firing order	1-3-2-5-8-6-7-4

The Wärtsilä 26 diesel engine is a 4-stroke, medium speed, turbocharged and intercooled engine with direct fuel injection.

1.0.2. Output

Engine output at site conditions				
Output 100%	kW	2480		
Engine speed	rpm	900		
Idling speed	rpm	300		
Conditions at site				
		Max.	Nom.	Min.
Ambient air pressure	mbar	—	1000	—
Site altitude above sea level	m	—	0	—
Suction air temperature	°C	45	—	15
Charge air coolant temperature	°C	38	—	25
Tolerance at full load between receiver temperature and LT water before air cooler	°C	11	—	—

Engine output according to ISO conditions		
Output 100%	kW	2480
Engine speed	rpm	900
Reference conditions according ISO 3046-1:1995(E)		
Ambient air pressure	mbar	1000
Site altitude above sea level	m	0
Suction air temperature	°C	45
Charge air coolant temperature	°C	38
Total exhaust gas back pressure	mbar	30

Note!

The full output of the engine is available at the ISO conditions. No compensation (uprating) is allowed for site conditions better than the ISO conditions. For derating data see section 1.0.3.

Fuel limiter is set at 110 % for governing purposes only.

1.0.3. Derating conditions

1 Derating of output for ambient conditions at site.

For site conditions and ISO reference conditions see section 1.0.2.

Derating is according to ISO 3046-1:1995(E) applying: $\eta_m = 0.90$

- 0.35% per °C that suction air temperature at site is above the ISO reference condition.
- 0.40% per °C that suction air temperature is below 15 °C.
- 0.30% per °C that charge air coolant temperature at site is above the ISO reference condition.
- 1.33% per kPa (10 mbar) that the total exhaust gas back pressure is above the ISO reference condition.
- 0.4% per ‰ relative pressure loss in the charge air cooler ¹⁾.
- 0.5% per 10% glycol unless the charge air coolant temperature is reduced by 1°C for every 10% glycol in the cooling water.

Note! Data mentioned in Operating Data (section 1.0.4.) must stay at the nominal values

2 Reduce engine load if operating temperatures of lubricating oil or cooling water exceed the nominal values or exhaust gas tend to exceed the maximum values, see section 1.0.4.

High operating temperatures can be caused by:

- contamination of coolers
- reduction of charge air pressure by:
 - contamination of turbocharger compressor and/or turbine
 - contamination of air in take filter
 - contamination of air side cooler.
 - too much wear of the turbine.
- deviation of setting of (individual) high pressure fuel pumps
- worn fuel injectors
- worn high pressure fuel pumps
- high fuel CCAI value (> 870)
- high ambient temperature.

Note! Never change fuel rack settings to equalize the exhaust gas temperature.

¹⁾ Relative pressure loss =
$$\frac{\text{pressure loss air cooler in mbar}}{\text{absolute charge air pressure bar}} \text{ ‰}$$

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

APPENDIX B

Criteria Pollutant Emission Calculations

Table B.1SYU Pipeline Span Remediation ActivitiesConstruction Equipment Description (Intrepid DP Vessel)[Reasonable Worst Case]

Equipment	Description	Device Specifications			Usage Data		Maximum Operating Schedule				Exemption/ Appl. Reg.	Operating Days	Engine Information	
		Fuel	%S	Size	Units	BSEC	Units	Load	hr	day	qtr	year		
SYU Maintenance Activities (Intrepid DP Vessel)														
Transit To/From Field (Within SBC)														
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	APCD Rule 202.F.8	Wartsila 8L26A @100%
	Propulsion (Gen Set) #2	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	APCD Rule 202.F.8	Wartsila 8L26A @100%
	Propulsion (Gen Set) #3	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	APCD Rule 202.F.8	Wartsila 8L26A @100%
	Propulsion (Gen Set) #4	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	Wartsila 8L26A
	Emerg. Diver Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	Cummins QXS15G3
	Diver Hot Water Heater	Diesel	0.0015	0.7 MMBtu/hr		5.5 gal/hr	0.00	0	0	0	0	0	APCD Rule 202.L.16	Beckett Model SF
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	Decommissioned
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	Decommissioned
	Mob Craft	Sasolinn	0.0015	25	bhp	0.0493	gal/bhp-hr	0.00	0	0	0	0	0	APCD Rule 202.F.8
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	APCD Rule 202.F.2, F.8	Caterpillar Model C9
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	APCD Rule 202.F.2, F.8	Caterpillar Model C9
Maintenance Repairs (Within SBC)														
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	APCD Rule 202.F.8	Wartsila 8L26A @100%
	Propulsion (Gen Set) #2	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	APCD Rule 202.F.8	Wartsila 8L26A @100%
	Propulsion (Gen Set) #3	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	16.2	16.2	APCD Rule 202.F.8	Wartsila 8L26A @ 15%
	Propulsion (Gen Set) #4	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	Wartsila 8L26A
	Emerg. Diver Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.40	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	Cummins QXS15G3
	Diver Hot Water Heater	Diesel	0.0015	0.7 MMBtu/hr		5.5 gal/hr	0.75	1	24	54	54	54	APCD Rule 202.L.16	Beckett Model SF @100%
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	Decommissioned
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	Decommissioned
	Mob Craft	Sasolinn	0.0015	25	bhp	0.0493	gal/bhp-hr	0.75	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	Johnson Outboard (2-cycle)
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	1	10	45	45	APCD Rule 202.F.2, F.8	Caterpillar Model C9	
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	APCD Rule 202.F.2, F.8	Caterpillar Model C9
												Total Days in SYU	5.0	

Notes:

Main Engine Control Devices:

- TC = Turbocharged
- IAC = Enhanced Aftercooled

BHP= KW x 1.341

Table B.2SYU Pipeline Span Remediation ActivitiesConstruction Emission Factors (Intrepid DP Vessel)[Reasonable Worst Case]

Equipment	Description	NOx	ROC	CO	SOx	PM	PM10	Units	Notes 1, 2, 3, 4, 5	Basis for Emission Factors
SYU Maintenance Activities (Intrepid DP Vessel)										
Transit To/From Field (Within SBC)										
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #2	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #3	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #4	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Emerg. Diver Generator	173.16	19.24	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 2, non-road
	Diver Hot Water Heater	20.00	0.34	5.00	0.21	2.00	1.92	lb/1000gal		AP-42 Table 1.3-1 and Table 1.3-3 (ROC); Distillate oil fir
	Mooring Gen Set	561.17	44.91	121.45	0.21	41.67	40.00	lb/1000gal		Decommissioned (Cat 3412)
	Bow Anchor Winch	561.17	44.91	121.45	0.21	41.67	40.00	lb/1000gal		Decommissioned
	Mob Craft	223.58	304.88	141.46	12.01	14.65	14.07	lb/1000gal		AP-42 Table 3.3-1: Gasoline Fuel
	Air Compressor	108.23	12.03	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 3, non-road
	Air Compressor	108.23	12.03	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 3, non-road
Maintenance Repairs (Within SBC)										
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #2	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #3	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Propulsion (Gen Set) #4	343.74	16.80	78.30	0.21	33.00	31.7	lb/1000gal		Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)
	Emerg. Diver Generator	173.16	19.24	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 2, non-road
	Diver Hot Water Heater	20.00	0.34	5.00	0.21	2.00	1.92	lb/1000gal		AP-42 Table 1.3-1 and Table 1.3-3 (ROC); Distillate oil fir
	Mooring Gen Set	561.17	44.91	121.45	0.21	41.67	40.00	lb/1000gal		Decommissioned (Cat 3412)
	Bow Anchor Winch	561.17	44.91	121.45	0.21	41.67	40.00	lb/1000gal		Decommissioned
	Mob Craft	223.58	304.88	141.46	12.01	14.65	14.07	lb/1000gal		AP-42 Table 3.3-1: Gasoline Fuel
	Air Compressor	108.23	12.03	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 3, non-road
	Air Compressor	108.23	12.03	104.22	0.21	6.01	5.77	lb/1000gal		EPA Tier 3, non-road

Notes:

1. NOx, CO, SOx and ROC emission factors for main engines: NOx based on manufacturer's data - Reference Engine International Air Pollution Prevention Certificate dated March 17, 2010 [NOx at 11.5 gm/kw-hr]. The CO, PM and ROC (TOC as CH4) emission factors based on EPA AP-42 Table 3.4-1. SOx emission factors based on fuel with a 15 ppm sulfur content.
2. EPA Tier 2 and 3 emission factors based on Nonroad Diesel Engines Tier Standards
3. Emission factors for MOB craft based on AP-42 Chapters 3.3 and 3.4.

Table B.3SYU Pipeline Span Remediation Activities Hourly and Daily Construction Emissions Estimate (Intrepid DP Vessel) [Reasonable Worst Case]

Equipment	Description	NOx		ROC		CO		SOx		PM		PM10	
		lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day
SYU Maintenance Activities (Intrepid DP Vessel)													
Transit To/From Field (Within SBC)													
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	18.86	226.35	0.92	11.06	4.30	51.56	0.01	0.14	1.81	21.73	1.74	20.86
	Propulsion (Gen Set) #2	18.86	226.35	0.92	11.06	4.30	51.56	0.01	0.14	1.81	21.73	1.74	20.86
	Propulsion (Gen Set) #3	18.86	226.35	0.92	11.06	4.30	51.56	0.01	0.14	1.81	21.73	1.74	20.86
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Diver Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Maintenance Repairs (Within SBC)													
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	18.86	452.70	0.92	22.13	4.30	103.12	0.01	0.28	1.81	43.46	1.74	41.72
	Propulsion (Gen Set) #2	18.86	452.70	0.92	22.13	4.30	103.12	0.01	0.28	1.81	43.46	1.74	41.72
	Propulsion (Gen Set) #3	18.86	452.70	0.92	22.13	4.30	103.12	0.01	0.28	1.81	43.46	1.74	41.72
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Diver Generator	0.48	0.48	0.05	0.05	0.29	0.29	0.00	0.00	0.02	0.02	0.02	0.02
	Diver Hot Water Heater	0.08	1.98	0.00	0.03	0.02	0.50	0.00	0.02	0.01	0.20	0.01	0.19
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.05	0.05	0.07	0.07	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	1.84	18.45	2.52	25.15	1.17	11.67	0.10	0.99	0.12	1.21	0.12	1.16
Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Table B.4SYU Pipeline Span Remediation Activities Quarterly and Annual Construction Emissions Estimate (Intrepid DP Vessel)[Reasonable Worst Case]

Equipment		Description		NOx		ROC		CO		SOx		PM		PM10	
		TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY	TPQ	TPY
SYU Maintenance Activities (Intrepid DP Vessel)															
Transit To/From Field (Within SBC)															
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	0.11	0.11	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	Propulsion (Gen Set) #2	0.11	0.11	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	Propulsion (Gen Set) #3	0.11	0.11	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Diver Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Maintenance Repairs (Within SBC)															
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	1.02	1.02	0.05	0.05	0.23	0.23	0.00	0.00	0.10	0.10	0.09	0.09	0.09	0.09
	Propulsion (Gen Set) #2	1.02	1.02	0.05	0.05	0.23	0.23	0.00	0.00	0.10	0.10	0.09	0.09	0.09	0.09
	Propulsion (Gen Set) #3	0.15	0.15	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Diver Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.04	0.04	0.06	0.06	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Repair Total		2.57	2.57	0.18	0.18	0.60	0.60	0.00	0.00	0.25	0.25	0.24	0.24	0.24	0.24

Table B.5SYU Pipeline Span Remediation Activities Peak Construction Emissions (Intrepid DP Vessel) [Reasonable Worst Case]

Peak Hourly (lb/hr)						
Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Vessel Transit (Within SBC)	56.59	2.77	12.89	0.03	5.43	5.22
Misc. Repairs (Within SBC)	59.05	5.41	14.40	0.14	5.58	5.36
Total	115.63	8.17	27.29	0.17	11.01	10.57
Note: Vessel transit and repair do not occur at the same time.						

Peak Daily (lb/day)						
Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Vessel Transit (Within SBC)	679.05	33.19	154.68	0.42	65.19	62.58
Misc. Repairs (Within SBC)	1,379.05	91.69	321.84	1.85	131.81	126.53
Total	2,058.10	124.87	476.52	2.27	197.00	189.12
Note: Vessel transit and repair do not occur at the same time.						

Peak Quarterly (tpq)						
Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Vessel Transit (Within SBC)	0.34	0.02	0.08	0.00	0.03	0.03
Misc. Repairs (Within SBC)	2.23	0.16	0.53	0.00	0.21	0.20
Total	2.57	0.18	0.60	0.00	0.25	0.24

Peak Annual (tpy)						
Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Vessel Transit (Within SBC)	0.34	0.02	0.08	0.00	0.03	0.03
Misc. Repairs (Within SBC)	2.23	0.16	0.53	0.00	0.21	0.20
Total	2.57	0.18	0.60	0.00	0.25	0.24

Intrepid DP Vessel

EMISSION SOURCES in WORK OPERATON

I.C. ENGINE INFORMATION

Main Propulsion Engines (Total of 5)

- ENGINE SPECIFICATIONS

(MAIN, AUX, CRANE, EMER GEN, FW PUMP, ETC)

+ NAME/ USE :	Wartsila for PROPULSION POWER			
+ NUMBER OF ENGINES:	4 (2 normally operate at a time)			
+ MANUFACTURER :	Wartsila			
+ MODEL NUMBER OR I.D.:	8L26 D622047V			
+ ENGINE TYPE:	TURBOCHARGED: YES		NATURAL ASP.: NO	
+ FUEL TYPE:	DIESEL		GASOLINE:	
+ MAX RATED HORSEPOWER: (BHP/ ENGINE)	M.G.O. 3326		TOTAL BHP: 13304	
+ NORMAL LOAD: (%)	25%		RANGE: (%) 15 - 80%	
+ NORMAL OPERATING HOURS/ DAY:	24		DURATION ONSITE: (DAYS) NA	

+ BASE ENGINE EMISSION RATE: (NOx LBS/ KGAL)	SOURCE:		CONTROL FACTORS	
+ EMISSION CONTROL DEVICES (YES OR NO)				
- TIMING RETARD:			NO. OF DEGREES 7-13%	
- TR w/ ELECTRONIC CONTROLS:			MODEL NO. OR I.D. 25%	
- TURBOCHARGED:	yes		MODEL NO. OR I.D. 10%	
- AFTERCOOLED:	yes		MODEL NO. OR I.D. 10%	
- ENHANCED AFTERCOOLED:			MODEL NO. OR I.D. 20%	
- HIGH PRESSURE INJECTORS:	270 kg/cmq		MODEL NO. OR I.D. 10%	
- PRECOMBUSTION CHAMBER:			MODEL NO. OR I.D. 20%	
- THROTTLE LIMIT:	0-100		MODEL NO. OR I.D. %	
- OTHER:			MODEL NO. OR I.D. %	
			MODEL NO. OR I.D. %	
			TOTAL 40	

+ EMISSION FACTOR: (LB/KGAL)

NOx EMISSIONS: (TONS)

+ EMISSION TEST RESULTS

- DATE & TEST INFORMATION:	EIAPP Limit 11.5 gm/kw-hr. Engine Actual Data: 10.4 gm/kw-hr at test conditions	
- TEST DATA RESULTS:		

- FUEL USE (NOTE: 1 CU M= 264.2 GAL)

+ THEORETICAL MAX FUEL USE: (GAL/ DAY/ ENGINE)				
+ EXPECTED FUEL USE: (TOTAL GAL/ DAY)	2686		PER ENGINE: (GAL/ DAY) 1343 55.95833 Ga/Hr	
+ LOAD FACTOR: (THEOR/ ACTUAL) %				
- SUPPORTING ACTUAL FUEL DATA:				
+ FUEL MEASUREMENT SYSTEM:	Manual			

Table B.1SYU Pipeline Span Remediation ActivitiesConstruction Estimated Fuel Use (Intrepid DP Vessel)[Reasonable Worst Case]

Equipment		Description	Device Specifications			Usage Data		ximum Operating Schedule (H				Fuel Use Estimate				Operating Days	Engine Information	
			Fuel	%S	Size	Units	BSFC	Units	Load	hr	day	qtr	year	hr	day	qtr	year	
SYU Maintenance Activities (Intrepid DP Vessel)																		
Transit To/From Field (Within SBC)																		
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	55	658	658	658	Wartsila 8L26A @100%	
	Propulsion (Gen Set) #2	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	55	658	658	658	Wartsila 8L26A @100%	
	Propulsion (Gen Set) #3	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	12	12	12	55	658	658	658	Wartsila 8L26A @100%	
	Propulsion (Gen Set) #4	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	Wartsila 8L26A	
	Emerg. Diver Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	Cummins QSX15G3	
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0.00	0	0	0	0	0	0	0	0	Beckett Model SF	
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	Decommissioned	
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	Decommissioned	
	Mob Craft	Gasoline	0.0015	25	bhp	0.049	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	Johnson outboard (2-cycle)	
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	0	0	0	Caterpillar Model C9		
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	0	0	0	0	Caterpillar Model C9	
Maintenance Repairs (Within SBC)																		
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	55	1,317	5,926	5,926	4.5	Wartsila 8L26A @100%
	Propulsion (Gen Set) #2	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	55	1,317	5,926	5,926	4.5	Wartsila 8L26A @100%
	Propulsion (Gen Set) #3	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.30	1	24	16.2	16.2	55	1,317	889	889	0.7	Wartsila 8L26A @ 15%
	Propulsion (Gen Set) #4	Diesel	0.0015	3326	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	0	Wartsila 8L26A
	Emerg. Diver Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.40	0.25	0.25	0.25	0.25	3	3	3	3	1.0	Cummins QSX15G3
	Diver Hot Water Heater	Diesel	0.0015	0.7	MMBtu/hr	5.5	gal/hr	0.75	1	24	54	54	3	69	156	156	4.5	Beckett Model SF @100%
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	0	Decommissioned
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	0	0	0	0	0	Decommissioned
	Mob Craft	Gasoline	0.0015	25	bhp	0.049	gal/bhp-hr	0.75	0.25	0.25	0.25	0.25	0	0	0	0	1.0	Johnson Outboard (2-cycle)
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	1	10	45	45	8	83	371	371	4.5	Caterpillar Model C9	
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	0	0	0	0	0	Caterpillar Model C9
Total Fuel Use									343	6,081	15,247	15,247	343	6,081	15,247	15,247	5.0	

Notes:

Main Engine Control Devices:

- TC = Turbocharged

- IAC = Enhanced Aftercooled

BHP= KW x 1.341

ATTACHMENT I
ATC/PTO Application for Pipeline Span
Remediation Maintenance Activities
ExxonMobil – Santa Ynez Unit

APPENDIX C

Greenhouse Gas Emission Calculations

Table C.1SYU ICCPS and Pipeline Span Remediation ActivitiesEquipment Description[Greenhouse Gas Calculations]

Equipment	Description	Device Specifications					Usage Data		Maximum Operating Schedule (Hrs)			Exemption/ Appl. Reg.	OPERATING DAYS		
		Fuel	%S	Size	Units	BSFC	Units	Load	hr	day	qtr	year			
SYU Maintenance Activities (Intrepid DP Vessel)															
Transit To/From Field (Within SBC)															
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	12	12	APCD Rule 202.F.8	0.5	
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	12	12	APCD Rule 202.F.8	0.5	
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	12	12	APCD Rule 202.F.8	0.0	
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	0.0	
	Emerg. Dive Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	0.0	
	Diver Hot Water Heater	Diesel	0.0015	0.7 MMBtu/hr	bhp	5.5	gal/hr	0.00	0	0	0	0	APCD Rule 202.L.16	0.0	
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	0.0	
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	0.0	
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0.00	0	0	0	0	0	APCD Rule 202.F.8	0.0
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	APCD Rule 202.F.2, F.8	0.0
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	0	APCD Rule 202.F.2, F.8	0.0	
Maintenance Repairs (Within SBC)															
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	APCD Rule 202.F.8	4.5	
	Propulsion (Gen Set) #2	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	108	108	APCD Rule 202.F.8	4.5	
	Propulsion (Gen Set) #3	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.30	1	24	16.2	16.2	APCD Rule 202.F.8	0.7	
	Propulsion (Gen Set) #4	Diesel	0.0015	3325.68	bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	APCD Rule 202.F.8	0.0	
	Emerg. Dive Generator	Diesel	0.0015	505	bhp	0.055	gal/bhp-hr	0.40	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	1.0	
	Diver Hot Water Heater	Diesel	0.0015	0.7 MMBtu/hr	bhp	5.5	gal/hr	0.75	1	24	54	54	APCD Rule 202.L.16	4.5	
	Mooring Gen Set	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	0.0	
	Bow Anchor Winch	Diesel	0.0015		bhp	0.055	gal/bhp-hr	0.00	0	0	0	0	N/A	0.0	
	Mob Craft	Gasoline	0.0015	25	bhp	0.0493	gal/bhp-hr	0.75	0.25	0.25	0.25	0.25	APCD Rule 202.F.8	1.0	
	Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	1	10	45	45	APCD Rule 202.F.2, F.8	4.5	
Air Compressor	Diesel	0.0015	300	bhp	0.055	gal/bhp-hr	0.50	0	0	0	0	APCD Rule 202.F.2, F.8	0.0		
Total Days in SYU													5.0		

Table C.2SYU ICCPS and Pipeline Span Remediation ActivitiesEquipmentEmissionFactors[Greenhouse Gas Calculations]

Equipment	Description	CO ₂	Emission Factors N ₂ O CH ₄	Units	Basis for Factors
SYU Maintenance Activities (Ocean Patriot DP Vessel)					
Transit To/From Field (Within SBC)					
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal
	Mooring Gen Set	10,150	0.26	0.74	g/gal
	Bow Anchor Winch	10,150	0.26	0.74	g/gal
	Mob Craft	10,150	0.26	0.74	g/gal
	Air Compressor	10,150	0.26	0.74	g/gal
Maintenance Repairs (Within SBC)					
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #2	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #3	10,150	0.26	0.74	g/gal
	Propulsion (Gen Set) #4	10,150	0.26	0.74	g/gal
	Emerg. Dive Generator	10,150	0.26	0.74	g/gal
	Diver Hot Water Heater	10,150	0.26	0.74	g/gal
	Mooring Gen Set	10,150	0.26	0.74	g/gal
	Bow Anchor Winch	10,150	0.26	0.74	g/gal
	Mob Craft	10,150	0.26	0.74	g/gal
	Air Compressor	10,150	0.26	0.74	g/gal

Table C.3SYU ICCPS and Pipeline Span Remediation Activities Quarterly and Annual Emissions Estimate[Greenhouse Gas Calculations]

Equipment	Description	CO ₂		CH ₄		N ₂ O		CO ₂ e	
		MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr	MT/Qtr	MT/Yr
SYU Maintenance Activities (Intrepid DP Vessel)									
Transit To/From Field (Within SBC)									
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #2	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #3	6.68	6.68	0.00	0.00	0.00	0.00	6.76	6.76
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Diver Hot Water Heater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Repairs (Within SBC)	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DP Maint. Vessel (Intrepid)	Propulsion (Gen Set) #1	60.15	60.15	0.00	0.00	0.00	0.00	60.85	60.85
	Propulsion (Gen Set) #2	60.15	60.15	0.00	0.00	0.00	0.00	60.85	60.85
	Propulsion (Gen Set) #3	9.02	9.02	0.00	0.00	0.00	0.00	9.13	9.13
	Propulsion (Gen Set) #4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Emerg. Dive Generator	0.03	0.03	0.00	0.00	0.00	0.00	0.03	0.03
	Diver Hot Water Heater	1.58	1.58	0.00	0.00	0.00	0.00	1.60	1.60
	Mooring Gen Set	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Bow Anchor Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mob Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Air Compressor	3.77	3.77	0.00	0.00	0.00	0.00	3.81	3.81
	Air Compressor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		154.76	154.76	0.00	0.00	0.01	0.01	156.59	156.55

Table C.4SYU ICCPS and Pipeline Span Remediation ActivitiesPeak Construction Emissions [Greenhouse Gas Calculations]

Peak Quarterly (MT/Qtr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	0.00	313.18
Maintenance Activities (Within SBC)	134.71	0.00	0.00	0.00	136.30
Total	154.76	0.00	0.01	0.01	449.49
Peak Annual (MT/Yr)					
Equipment Category	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Vessel Transit (Within SBC)	20.05	0.00	0.00	0.00	20.28
Maintenance Activities (Within SBC)	134.71	0.00	0.00	0.00	136.27
Total	154.76	0.00	0.01	0.01	156.55

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APPENDIX D

Fuel Measurement Plan

**Santa Ynez Unit
Pipeline Span Remediation
Maintenance Activities**

FUEL MEASUREMENT PLAN

ExxonMobil Production Company

June 2011

1. Introduction

ExxonMobil will temporarily use a special vessel, the *Intrepid*, along with other auxiliary and support equipment to conduct maintenance activities associated with the pipeline span remediation activities. These maintenance activities are expected to take less than one week to complete.

This plan discusses the fuel measurement approaches to be implemented during the pipeline span remediation activities. Vessel diagrams indicating the location of the fuel tanks as well as the fuel piping between the tanks and the engines are included in Appendix E.

2. Repair Vessel, Auxiliary and Support Engines

This section discusses the fuel measurement systems for the internal combustion (I.C.) engines and direct fired heaters associated with the vessel, *Intrepid*, and the auxiliary and support engines required for the maintenance activities. The information below provides details on the fuel measurement systems and lock-out procedures for each engine or combustion device.

The engines that are present on the *Intrepid* and may be used during the maintenance activities are summarized below.

Equipment Type	Description	Emission Controls ¹	Operational Status for Project
Main Engine #1	Warsila Model: 8SL26 Serial No.: 26567	TC, IAC, HPI	In Use
Main Engine #2	Warsila Model: SL26 Serial No.: 26568	TC, IAC, HPI	In Use
Main Engine #3	Warsila Model: SL26 Serial No.: 26569	TC, IAC, HPI	In Use (As required)
Main Engine #4	Warsila Model: SL26 Serial No.: 26570	TC, IAC, HPI	Alternate ²
Diver Emergency Generator	Cummins Model: QSK15G3 Serial No.: 79140200	TC	Safety Req'd. Testing Only

¹ TC = Turbocharged, IAC = Enhanced Aftercooled, HPI = High Pressure Injectors

² No more than three main engines will be operated at any time except in case of an emergency; the fourth engine will be available to replace one of the operating engines.

Equipment Type	Description	Emission Controls ¹	Operational Status for Project
Diver Hot Water Heaters- (2)	Beckett Model: SF Serial No: 060821-2253G	None	In Use (Operate one with other as a spare)
Air Compressor 1	Caterpillar Model: C9 Serial No: JSC16776	TC, AC	In Use
Air Compressor 1	Caterpillar Model: C9 Serial No: JSC15607	TC, AC	Backup to Air Compressor 1
Mob Craft	Johnson Outboard Model: J25ELSOB Serial No: 05108086	None	Safety Req'd. Testing Only
Mooring Generator Set	Caterpillar Model: 3412 Serial No: N/A	TC, AC	Not in Service – Fuel Line Disconnected

a. Vessel Fuel Measurement Systems

Each I.C. engine associated with the maintenance activities will have a defined methodology to determine the fuel consumed on a daily basis. The sections below provide specific information on the fuel measurement systems that will be used for each I.C. engine.

Fuel Storage

There are four main Fuel oil storage tanks onboard the vessel. All four tanks will contain the same CA low sulfur (<15 ppm) diesel fuel. No. 1 port and No.1 starboard tanks have a capacity of 365.22 M3 each and No. 3 port and No. 3 starboard tanks have a capacity of 366.1 M3 each. There are two settling tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 25.1M3. There are also two day tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 15.46M3. The vessel contains a fuel manifold system that allows fuel from any of the main storage tanks to be transferred to either of the day tanks.

There are two fuel oil separators (centrifuges) located respectively in the Port and the Starboard side engine room. The separators are used to clean the fuel going from the settling tanks into the day tanks on a continuous 24 hour/day basis. As a result of this, the day tanks remain essentially full all the time. The settling tank volume will decrease as the engines consume fuel. The fuel from the day tanks are used to supply the main engines as well as the on-deck fueling stations. Fuel will be transferred once a day at approximately the same time from the main fuel storage tanks to each settling/day tank system.

The on-deck IC engines contain separate fuel tanks that are filled from one of the on-deck fueling stations.

During the maintenance activities, the *Intrepid* vessel plans to use all four fuel storage tanks (total of 1,462.6 cubic meters) for low-sulfur diesel fuel (i.e., 0.0015% S) storage on the vessel. These tanks will be used exclusively to supply all of the fuel used during the maintenance activities. Prior to loading with low-sulfur fuel, the designated tanks will be emptied with the contents pumped out to as low a level as possible. If any of the storage tanks are found to contain high sulfur fuel, they will be removed from service and have appropriate means used to prevent inadvertent use during the maintenance activities. If required, individual engine fuel storage tanks will be emptied with the contents pumped out to as low a level as possible and then refilled with low-sulfur fuel. Low-sulfur fuel for the engines used during the maintenance activities will be supplied from fuel manifold piping that connects from one of the designated low-sulfur fuel storage tanks directly to one of the day tanks.

Inventory Check

The sum of the daily total fuel measurements for each engine will be used to determine the quantity of fuel used during the maintenance activities. As a check on the measured fuel used, the vessel will also determine the inventory change between the start and end of the maintenance activities. The determination will involve the following factors: 1) beginning inventory in designated low-sulfur fuel tanks at start of work; 2) fuel purchased or added to designated low-sulfur fuel tanks; 3) fuel transferred out of designated low-sulfur fuel tanks to other storage tanks and not consumed; 4) ending inventory in designated low-sulfur fuel tanks at end of work; and 5) fuel used for non- maintenance activities (i.e., outside of Santa Barbara County). The above information, including supporting documentation will be maintained in written form and provided to ExxonMobil.

The check calculation will be as follows:

$$[\text{Maintenance activity gallons} = \text{Beginning inventory} - \text{Ending inventory} + \text{Purchased or added} - \text{Transferred} - \text{Non-maintenance activities use}]$$

If the difference between the sum of the measured daily values for all of the engines while in SBC and the vessel inventory check is substantially different (>15%), the inventory check total will be used to determine fuel consumption by adjusting the daily measurements to compensate for the difference. This process involves multiplying the percentage difference times each of the total measured value to obtain an adjusted value that will be used to determine emissions.

Fuel Measurement- General

Daily fuel consumption measurements will be made on each of the fuel tanks. The difference between daily measurements will determine the amount of fuel consumed. This fuel volume will then be allocated to the various engines.

At the start and end of the maintenance activities, the fuel level in each of the fuel storage tanks will be measured and recorded in a log. During the maintenance activities, fuel used by each engine will be determined on a daily basis and recorded

in a log. In addition, the time each engine operates will also be determined on a daily basis and recorded in a log. Finally, the vessel engineers will record the daily electrical power output of each of the main generators that are in service.

The following sections explain the methodology for determining fuel consumption for each engine used on board the vessel during the maintenance activities.

Fuel Storage Tank Fuel Consumption Measurement

Ship engineers will measure the height of the fuel in each fuel storage tank, settling tank, day tank and on-deck engine tank at approximately the same time each day. The measurement will be made using a sounding tape, gauge glass, calibrated dip stick, or other appropriate means. The end of the gauging tape/stick will be lowered to the tank bottom and then recovered with the point where the tape/stick becomes wetted defining the height of the fuel in the tank. The difference in height between the two daily measurements, multiplied by a factor dependent on the storage tank dimensions, will determine fuel consumption by all of the ship engines for the day.

On a daily basis, the total vessel onboard fuel inventory will be obtained by summing the amount of fuel in each storage tank (soundings of each storage tank converted to volume using the respective tank tables), the amount of fuel in each settling and day tank (gauge glass readings converted to volume using the respective tank table) and the amount of fuel in each on-deck engine tank (calibrated dip stick reading converted to volume using the respective tank table).

Fuel Consumption by the Main Ship Engine-Generators

The main ship engine-generators work in an equilibrated condition with each of the operating generators running at approximately the same load. This is achieved through a control device that changes the generators working conditions to have all of them operating at the same load level. Therefore, since the four engines are exactly the same, the fuel consumption for each of the engine-generators will be calculated by dividing the total fuel allocated to these main engine-generators by the number engine-generators in service (adjusted for hours of operation).

The daily fuel allocated to the main ship engine-generators will be determined by the change in height in the Port and Starboard Day/Settling Tanks minus the fuel distributed to the on-deck fueling stations used by the support/auxiliary engines.

Fuel Consumption by Diesel Support/Auxiliary Engines and Heaters

The various support/auxiliary engines (diver emergency generator, diver heaters, air compressors, etc.) will be fueled from one of three on-deck fueling stations, as needed. The fueling stations are supplied fuel from one of day tanks below deck. During the maintenance activities, each engine tank will be filled daily or as required. The fuel consumption will be determined, if the engines are operated, by the difference of level of fuel in the tanks. A sounding tape, gauge glass, calibrated dip stick, or other appropriate means will be used to measure the difference in height of fuel in each tank. If tank filling is required, the fuel added will be determined by

measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Diver Emergency Generator (1)

The engine has a separate fuel tank. During the maintenance activities, the fuel consumption will be determined, if the engine is operated, by the difference in height of fuel in the tank since tank refueling is not anticipated. A sounding tape, gauge glass, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in the tank. If tank filling is required because the level has reached a minimum volume, the fuel added will be determined by measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Diver Hot Water Heaters (2)

The dive heaters have a separate fuel tank. During the maintenance activities, the fuel consumption will be determined by the difference in height of fuel in the tank. A sounding tape, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in the tank. If tank filling is required, the fuel added will be determined by measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Air Compressor Engines (2)

Each engine has a separate fuel tank. During the maintenance activities, the fuel consumption will be determined, if the engine is operated, by the difference in height of fuel in the tank. A sounding tape, gauge glass, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in the tank. If tank filling is required because the level has reached a minimum volume, the fuel added will be determined by measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

Fuel Combustion by Mob Craft Engine (1)

The engine has a separate fuel tank. During the maintenance activities, the fuel consumption will be determined, if the engine is operated, by the difference in height of fuel in the tank since tank refueling is not anticipated. A sounding tape, calibrated dip stick or other appropriate means will be used to measure the difference in height of fuel in the tank. If tank filling is required because the level has reached a minimum volume, the fuel added will be determined by measuring the height before and after fueling. The height difference will be multiplied by a factor dependent on the storage

tank dimensions to determine fuel consumption. The level information and resultant fuel consumption will be recorded in a log.

b. Lock-Out Procedures for Equipment

The Mooring Gen-set (Caterpillar Model 3412) located below deck is no longer in operation. The fuel line to the engine has been removed.

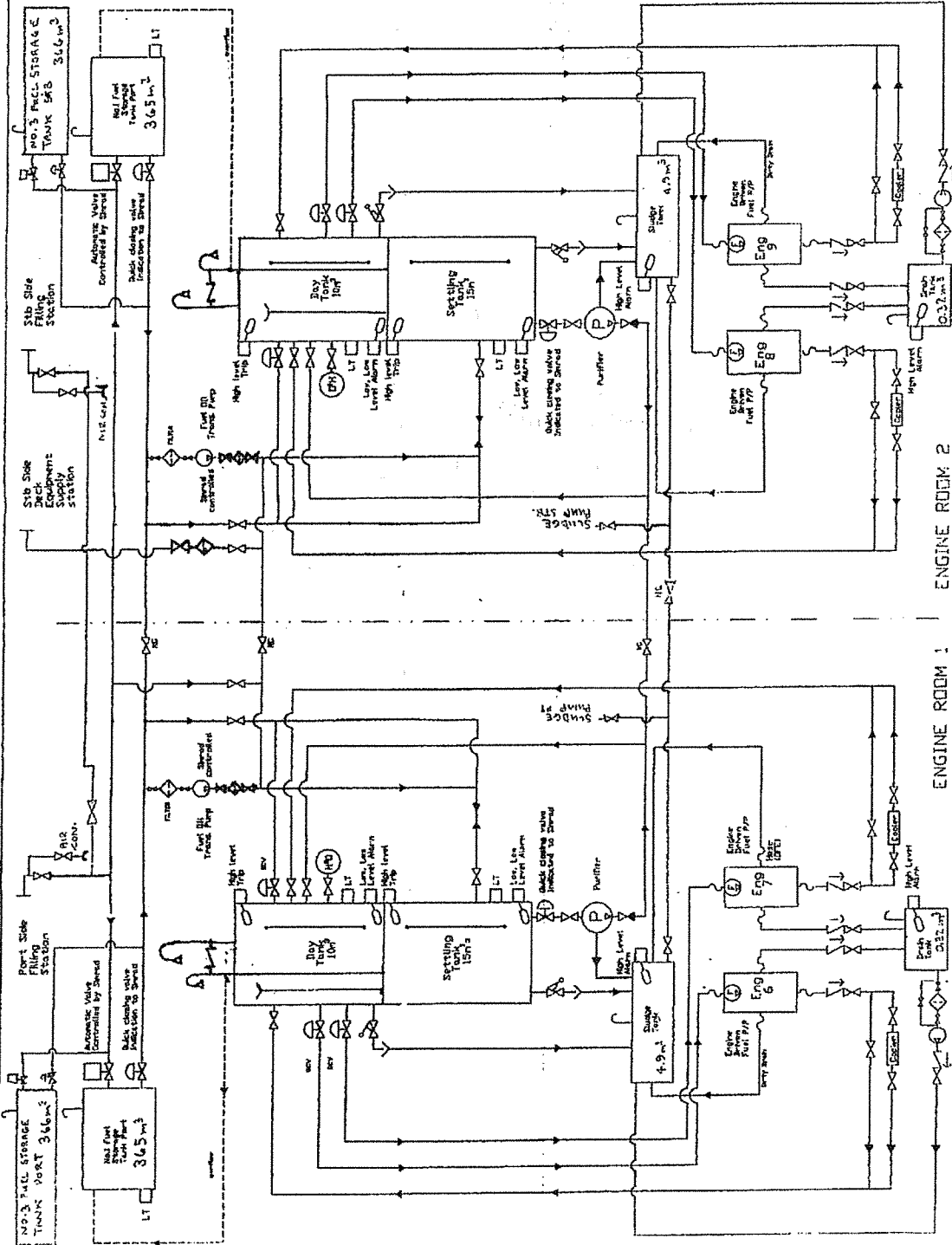
3. Record Keeping and Reporting Requirements

Helix (vessel operator) will maintain records of fuel loadings, transfers and operating levels in each of the designated low-sulfur fuel tanks on a daily basis. In addition, Helix and any subcontractors will maintain records, on a daily basis, of the fuel use and hours of operation of each engine for which they are responsible. The records will clearly show when the *Intrepid* vessel is in Santa Barbara County waters. The records will be provided to ExxonMobil to use in determining fuel use and emissions.

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APPENDIX E

Vessel Diagrams and Information



<input type="checkbox"/>	Pneumatic valve remotely controlled by Shore
<input type="checkbox"/>	Level Transducer Indicating back to Shore
<input type="checkbox"/>	Hydraulic remotely operated shutdown valve indicated back to Shore
<input type="checkbox"/>	Tank vent to main deck
<input type="checkbox"/>	Manual screw down valve
<input type="checkbox"/>	Water detection instrument indication back to Shore
<input type="checkbox"/>	Float switch indication back to Shore
<input type="checkbox"/>	Purifier
<input type="checkbox"/>	Filter
<input type="checkbox"/>	Direction of flow
<input type="checkbox"/>	Spring return manual sludge drain valve
<input type="checkbox"/>	Open tundish
<input type="checkbox"/>	Fuel oil Transfer pump
<input type="checkbox"/>	Flexible hose (Owner furnished equipment)
<input type="checkbox"/>	Sea Water Cooler (Owner furnished equipment)
<input type="checkbox"/>	Non return valve flap type
<input type="checkbox"/>	Non return valve Manual screw down type
<input type="checkbox"/>	Fuel Meter
<input type="checkbox"/>	Engine Driven Fuel pump
<input type="checkbox"/>	Gauge Glass
<input type="checkbox"/>	ANCHORED FITTINGS

DRAWING NO. PH-55-70-01		SHEET NO.	TOTAL SHEET.	REV.
Drawn By C. Jones		DATE 9th Nov 00	Scale	Size
Approved By		DATE	NTS	Ledger
REVISION BY J. Jones 11.11.00				

TITLE: INTREPID Fuel Oil System Schematic

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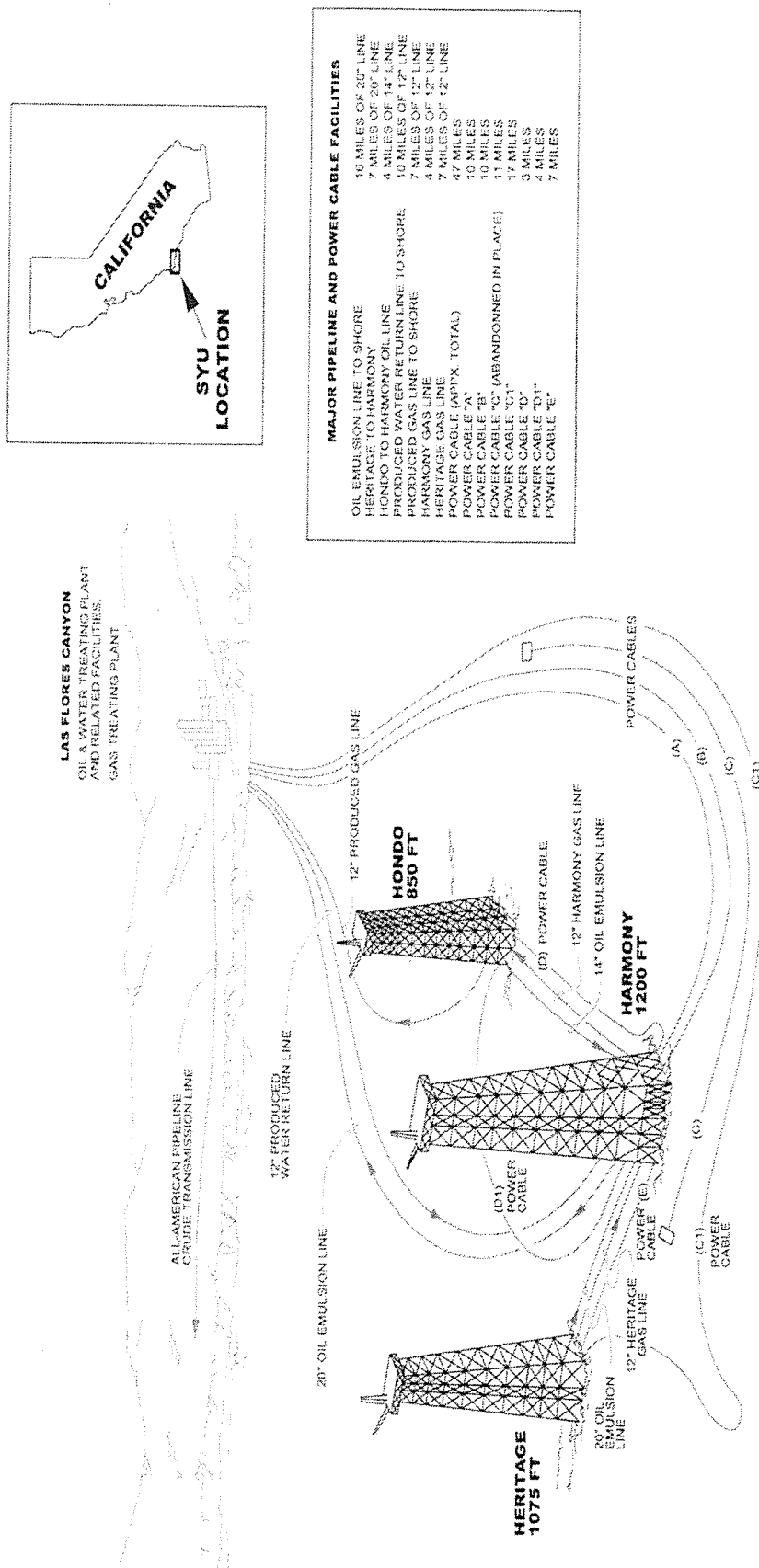
APPENDIX F

Project Figures

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Figure 1 Schematic Diagram of SYU Offshore Facilities:

SANTA YNEZ UNIT FACILITIES



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Figure 2 Location of Pipeline Free Spans

